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CRM for SME

Payne

Angie Payne

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AN EVALUATION OF AN OPEN SOURCE E-COMMERCE TOOL FOR PHILIPPINE SMALL MEDIUM ENTERPRISES IN MAKATI CITY

Polytechnic University of the Philippines
Graduate School

ANGELICA P. PAYNE

Masters of Science in Information Technology

2012

AN EVALUATION OF AN OPEN SOURCE E-COMMERCE TOOL FOR PHILIPPINE SMALL MEDIUM ENTERPRISES IN MAKATI CITY

A Thesis
Presented to the Faculty of the Graduate School
Polytechnic University of the Philippines
Sta..Mesa, Manila

In Partial Fulfillment of the Requirements for the Degree
Masters of Science in Information

By

ANGELICA P. PAYNE

2012

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This is to certify that the research work presented in this thesis entitled for the degree in Masters of Science in Information Technology at the Polytechnic University of the Philippines embodies the result of original and scholarly work carried out by the undersigned. This thesis does not contain words or ideas taken from published sources or written works that have been accepted as basis for award of a degree from any higher education institution, except where proper referencing and acknowledgment were made.

ANGELICA P. PAYNE

Researcher

February 02, 2012

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Finally, the researcher would like to give back to **THE CREATOR** all the glory and honor. Amen!

ABSTRACT

TITLE	:	An Evaluation Of An Open Source e-Commerce Tool For Philippine Small Medium Enterprises In Makati City
RESEARCHER	:	Angelica P. Payne
DEGREE	:	Masters of Science in Information Technology
INSTITUTION	:	Polytechnic University of the Philippines
YEAR	:	2012
ADVISER	:	Professor Flordeliz C. Garcia

THE PROBLEM

The main study area is "**An Evaluation of an Open Source e-Commerce Tool for Philippine Small and Medium Enterprises in Makati City**" and the objective of the study was to examine the relevance, acceptability and competency of the FreeCRM tool as assessed by the Owners, IT Administrators, and CRM users' based on their needs such as business requirements, cost, ease of use and reliability. It identifies the problems encountered by the respondents while using the FreeCRM tool and also proposes an action plan that will benefit the SMEs in the Philippines.

RESEARCH METHODOLOGY

The research methodology used is a descriptive method of research; the researcher used Nonprobability Sampling method thru Convenience Sampling which relies upon convenience and access. The respondents were Owners, System administrators and CRM users they were approached were given and questionnaire used in the data gathering technique. Data were treated using Percentage and Frequency Distribution, Standard Deviation, Ranking and Weighted Mean.

FINDINGS

The findings revealed that the Open Source c-Commerce Tool (FreeCRM) is generally acceptable to the respondents in terms of their business requirements, cost, ease of use and reliability. However, the respondent's also encountered problems such as slow internet, no internet, computer freeze, forget username/password and not enough time for testing.

CONCLUSIONS

The results shows that the respondents perceived that the OSECT Tool (FreeCRM) fulfill their business requirements needs and that the tool provided them traceability in their sales and marketing transactions and will be of great help in the promotion of their business.

RECOMMENDATIONS

The recommendations are that the system be reviewed by concerned government agency to determine its applicability to SMEs in Makati, further evaluation of the OSECT Tool(FreeCRM) in the area of security and accuracy for six months after implementation, stakeholders are encourage to utilize the system for effective sales and marketing management, SMEs in Makati should use the tool and avail paid packages of the OSECT Tool (FreeCRM) and in the future the OSECT Tool (FreeCRM) should be partnered with a business analytics application to provide predictable trends and buying patterns of customer. The researcher also proposed some course of plan of action which is later disclose in the Appendices where the private and public sector can go hand in hand in helping SMEs achieve their business goals.

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CHAPTER 1

PROBLEM AND ITS BACKGROUND

INTRODUCTION

Technology has changed completely the many features of business and market activities. Internet is one of the most prominent technologies, which has developed the global digital economy with a new stroke of luck. One of the most evident transformations of business is e-Commerce. e-Commerce empowers businesses to sell products and services to consumers on a global scale.

A striking character of electronic commerce is that it assists firms to compete, be open to new markets and expand the geographic radius of their operations. Embracing a suitable technology can direct a company to outstanding business competency, boost business efficiency and secure its competitive edge. In spite of this awareness, many SME's in the developing countries like the Philippines have yet to welcome e-commerce in running their business. The objective of this research is to recognize and compile in one structure the pertinent issues, variables, components and concepts that requires attention to promote, inspire and enable SMEs in the Philippines to use electronic commerce technology in running their business.

This research is concerned with the adoption of electronic commerce by Filipino owned SME's in Makati City and more specifically understanding the factors influencing the adoption of open source e-commerce tool in managing their businesses. Just like any other business, small and medium enterprises

(SMEs) also need mobility to boost and grow their business. With their limited resources, a big number of them are just content with their manual system and may not have the opportunity to see and use open source systems like FreeCRM as a tool that will help them manage their business and boost their mobility and capability.

BACKGROUND OF THE STUDY

Advances in information and communication technologies and the emergence of the Internet have revolutionized business activities enabling new ways of conducting business referred to as electronic commerce (Zwass, 2003; Turban et al, 2004). Electronic commerce is viewed as a process of buying, selling, transferring or exchanging products, services, and/or information through computer networks, mainly the internet (Turban et al, 2004). Electronic commerce can also be defined as: "The sharing of business information, maintaining of business relationships and conducting of business transactions by means of telecommunications networks" (Zwass, 2003 p.8).

Electronic commerce activities encompass the inter-organizational processes of market-based sell-buy relationships and collaboration (known as business-to-business, or B2B, consumer-to-consumer, or C2C), also the intra-organizational processes that support them (Zwass, 2003). Electronic commerce as a way of doing business has significant advantages; organizations are embracing e-commerce as a means of expanding markets, improving customer service, reducing cost, and enhancing productivity (Wenninger, 2000). A vital benefit of e-commerce is access to global markets which enables businesses to

expand their reach. The Internet allows for unconstrained awareness, visibility and opportunity for an organization to promote its products and services (Senn, 2000).

Various studies have reported that SMEs are generally lagging behind the large organizations as far as the adoption and usage of e-commerce is concerned (Simpson & Docherty, 2004; Chau & Turner, 2002; lhlstrum et al, 2003; Stockdale & Standing, 2006). This sluggish uptake and diffusion of the technology among SMEs conflicted with the commonly held view that SMEs have been noted for their ability to respond to new opportunities and innovations more quickly than larger enterprises (Lomerson et al, nd; Rao et al, 2003) alluded to the fact that SMEs are generally considered to be flexible, adaptive and innovative making them a good fit for electronic commerce.

It is a well-known fact that e-commerce and Internet technologies can benefit an organization (Akkeren & Cavaye, 1999). This is particularly true for SMEs due to the fact that e-commerce improves an SME's ability to compete with larger organizations and operate on an international scale (Cloete et al, 2002). E-commerce can deliver the tools to provide cost effective ways for SMEs to market themselves, launch new products, improve communications, gather information, and identify potential business partners (Cloete et al, 2002).

From the above narrative it is evident that larger companies seize business opportunities in the internet faster than smaller companies. With the rapid growth of registered domains and Internet users, it is logical to believe that most large firms are already connected to the Internet.

Conversely, the Internet involvement rate of small and medium sized enterprises (SMEs) is low compared to larger firms. The way companies use the Internet technologies also varies from company to company; for example, it has been reported that 36% of small businesses chiefly establish websites to only advertise and promote their businesses, compared to 9% which established their websites to sell or market online (Grandon & Pearson, 2004). Correspondingly, a survey carried out by Pratt (2002) found that many SMEs are reluctant to conduct transactions online; more than 80% only use the Internet to communicate (via e-mail) and gather business information. This leads to a specific question that is why most SMEs do not exploit the advantages of the Internet. Even though most researchers and practitioners proposed and recommended that multiple advantages of the Internet are applicable to SMEs. A vast number of scholars have attempted to investigate factors affecting the decisions of SMEs to participate in the marketplace (e. g., Fillish & Wagner, 2005; Stockdale & Standing, 2004; Fillish et a!, 2004). For example, Fillish et al (2004) suggested a number of negative attitudes SMEs have toward e-business consisting of conservatism, fear of change/technology, lack of drive, lack of imagination, lack of interest, inertia in decision making, security fears, and unwillingness to learn new skills, financial constraints and other resource barriers.

Stockdale and Standing (2004) reviewed prior related research and confirmed that there are five internal and three external barriers that commonly affect the e-marketplace participation of SMEs. The internal barriers are identification of benefits, global trading, financial constraints, supply chain

integration, and understanding of the e-environment while the external barriers are lack of understanding of SME needs, no common technology standards, and e-competence of the industrial sector. These findings built a comprehensive data for better understanding of the operations of SMEs, which is beneficial for initiatives aspiring to stimulate the participation rate of SMEs. Obviously, the electronic marketplace involvement rate of SMEs is still low; it would be predicted to steadily grow as more governments all around the world recognize the significance of Internet technologies and are recently spurring their local SMEs to engage in the Internet environment. Significantly, resources are allocated to facilitate SMEs to conveniently connect to the Internet environment. Consequently, it could be stated in this thesis that the number of SMEs embracing electronic commerce is increasing.

THEORETICAL FRAMEWORK

An open system is a system which continuously interacts with its environment. The interaction can take the form of information, or material transfers into or out of the system boundary, depending on the discipline which defines the concept (see Figure 1 in page 8). The concept of an "open system" was formalized within a framework that enabled one to inter-relate the theory of the organism, thermodynamics, and evolutionary theory. This concept was expanded upon with the advent of information theory and subsequently systems theory. Today the concept has its applications in the natural, social sciences and information technology.

Open systems are computer systems that provide some combination of interoperability, portability, and open software standards. (It can also mean specific installations that are configured to allow unrestricted access by people and/or other computers.)The term was popularized in the early 1980s, mainly to describe systems based on UNIX, especially in contrast to the more entrenched mainframes and minicomputers in use at that time. Unlike older legacy systems, the newer generation of UNIX systems featured standardized programming interfaces and peripheral interconnects; third party development of hardware and software was encouraged, a significant departure from the norm of the time, which saw companies such as Amdahl and Hitachi going to court for the right to sell systems and peripherals that were compatible with IBM's mainframes.

The definition of "open system" can be said to have become more formalized in the 1990s with the emergence of independently administered software standards such as The Open Group's Single UNIX Specification. Although computer users today are used to a high degree of both hardware and software interoperability, in the 20th century the open systems concept could be promoted by UNIX vendors as a significant differentiator. IBM and other companies resisted the trend for decades, exemplified by a now-famous warning in 1991 by an IBM account executive that one should be "careful about getting locked into open systems".

However, in the first part of the 21st century many of these same legacy system vendors, particularly IBM and Hewlett-Packard, began to adopt Linux as part of their overall sales strategy, with "open source" marketed as trumping

"open system". Consequently an IBM mainframe with Linux on zSeries is marketed as being more of an open system than commodity computers using closed-source Microsoft Windows—or even those using UNIX, despite its open systems heritage.

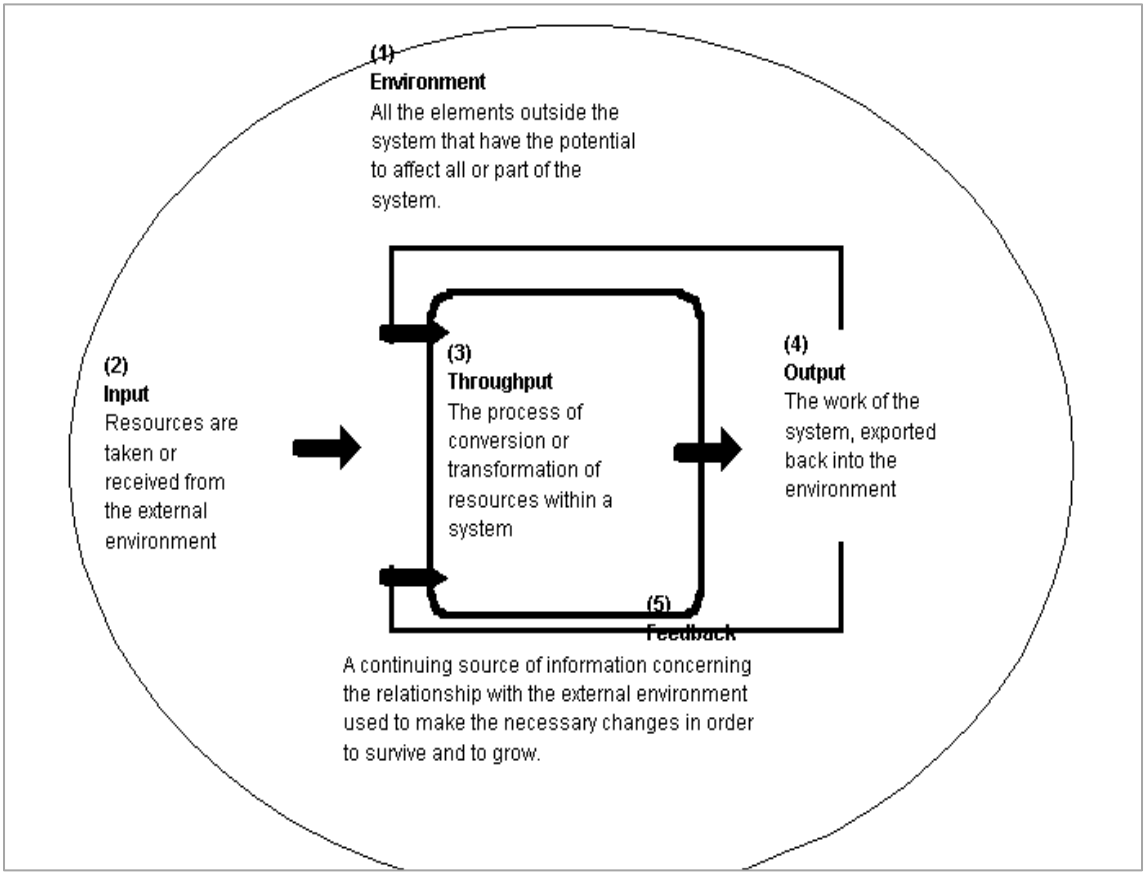


Figure 1. The Basics of Open Source Model

1. **WHAT CRM SYSTEMS CAN DO:**

   1.1 Combine information from different departments to get a unified view of the customer

   1.2 Help companies with many contact points; e-mails, phone, direct marketing, online, mass media-present "one face" to consumers.

1.3 Find the most profitable customers and help a company nurture a relationship with them.

2. The Power of Open Source CRM Systems

Customer Relationship Management software, usually known as CRM, are designed to help companies and their customers get more out of their interactions with each other. For the customer, pre-buy product evaluation, ordering, payment, service and reordering is ideally a more enjoyable experience. For the business that uses CRM Systems, better contact management, problem resolution tracking, an understanding of marketing campaign ROI, and insight into customers' needs and habits are just some of the results of a good CRM Systems suite. CRM systems can be housed on a company's computers, or, can be completely online in what's called CRM on demand, also known as hosted CRM.

2.1 Pros:

2.1.1 Relatively low cost compared to traditional CRM software vendors.

2.1.2 Available as on-premise software or hosted CRM service.

2.1.3 Completely customizable to meet a business' unique needs.

2.2 Cons:

2.2.1 The low- or no-cost CRM software can be offset by the expensive man hours of a development team?

2.2.2 As an emerging industry, there is not always the support, training, and infrastructure of more established companies.

2.2.3 There is not the range in open source applications that there is in proprietary software.

3. **THE POWER OF OPEN SOURCE SOFTWARE:** Exactly as it sounds, the code that powers open source software is available for anyone to look at, modify, or use however they see fit. This modification isn't necessarily easy; CRM software is a complex application that strives to look simple. The power of open source CRM is that if the solution is well-designed and easy-to-use to start with, a minimal investment in programming hours can yield a powerful modification that makes the CRM solutions a perfect "fit" for the company.

4. **RUN-DOWN ON OPEN SOURCE CRM:**

4.1 Although an emerging field, there are some good "out-of-box" open source CRM solutions available.

4.2 Especially good for technically-savvy companies that have the in-house know-how to customize and maintain open source CRM without having to hire outside consultants.

4.3 There are both web-based (hosted) open source CRM solutions and non-hosted solutions that sit on a company's server.

5. **A WINNING COMBINATION:** CRM and Open Source: At least in theory, open source and CRM is a match made in heaven. CRM, after all, is about

> managing and understanding large numbers of interactions and the huge amounts of data mined from those interactions. Open source software is also about making transparent what used to be invisible, and making simple what used to be complex. Open source and CRM share the same overriding goal: To make life easier, and better, for the end user. (Opensource-CRM.com, 2012)

CONCEPTUAL FRAMEWORK

Figure 2 demonstrates the Conceptual Framework of the study. As shown in the image, the input contains the main variables of the study in which units are selected based on easy access and availability respondents who tested and evaluated the FreeCRM tool, then the respondents used an online survey questionnaire tool (Kwiksurveys.com) in measuring the acceptability of the OSECT (FreeCRM)Tool in terms of SMEs Business Requirements, Cost, Ease of Use and Reliability. The process include the procedures that will be undertaken by the researcher, data gathered were collected in Kwiksurvey.com and were later treated using Percentage and Frequency Distribution, Standard Deviation, Weighted Mean and Ranking. As a result of the study, it is desired that stakeholders particularly the Owners, System Administrators and CRM users will have greater understanding of FreeCRM tool, will continue to use the OSECT Tool and will participate to the researcher future plan of action.

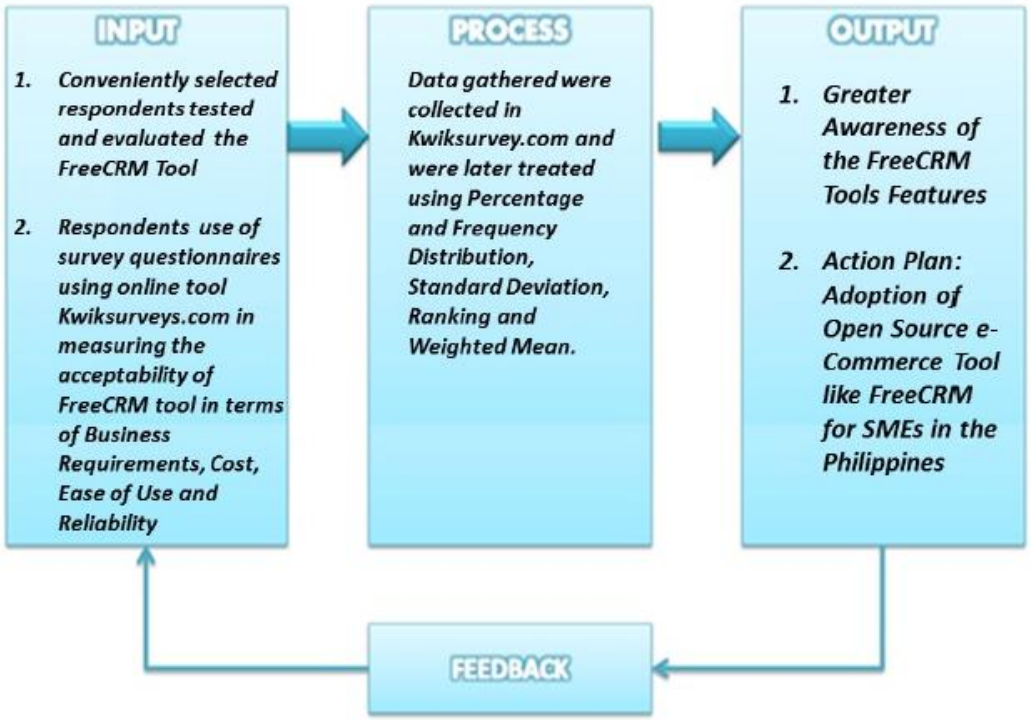


FIGURE 2. RESEARCH PARADIGM

STATEMENT OF THE PROBLEM

The study main area is "An Evaluation of an Open Source e-Commerce Tool for Philippine SMEs (Small and Medium Enterprises) in Makati City." Moreover, the study also examines the relevance, acceptability and competency of the FreeCRM tool as assessed by the Owners, System Administrators, and CRM users.

Precisely it seeks to answer the following questions:

1. How do the respondents assess the level of acceptability of Open Source e-Commerce Tool in terms of the following Business requirements:
   1.1 Record system and Document Management
   1.2 Sales, Leads, Targets, Accounts
   1.3 Marketing, Promotions, Pipeline, Campaigns

1.4 Tasks, Cases, Reports

1.5 Access Call, Email, Text/SMS, Alerts

2. What is the level of acceptability of Open Source e-Commerce Tool as evaluated by the respondents in terms of the following features:

2.1 Cost

2.2 Ease of Use

2.3 Reliability

3. What are the problems encountered by the respondents while testing the OSECT (FreeCRM) Tool? What corrective measures can be proposed to solve these problems?

Based from the findings of the problems stated above the researcher will propose an action plan to benefits SMEs in the Philippines which will be further discussed in Chapter 5.

SCOPE AND LIMITATIONS OF THE STUDY

The study was limited to the conduct of the documentary analysis of FreeCRM tool components which corresponds to the respondent's needs such as business requirements, cost, ease of use and reliability. A survey was conducted thru the web to assess the relevance, acceptability and competency of the FreeCRM tool as an open source e-commerce system in the e-commerce exchange. The researcher made a questionnaire used in the electronic survey, which ran the month of November 2011- March 2012. This was participated-in by

units that are selected based on easy access and availability respondent groups, namely, the Owners, the System Administrators, and the CRM users. Only those who filled-out the e-survey will be included as respondents of this study.

Also shown in Figure 10 below the complete components of the FreeCRM tool as compared to its paid counterpart.

	VoiceCRM *with* *Premium support*	PRO *with* *Premium support*	PRO *with* *Basic support*	PRO *with* *No support*	Free Edition
Click below for details	$39.95/ mo/user	$24.95/ mo/user	$19.95/ mo/user	$14.95/ mo/user	50 Users
+ Support (Email/Chat/Phone)	✓	✓	✓		
+ Sync Tools	✓	✓	✓	✓	
Blackberry Sync	✓	✓	✓	✓	-
Outlook Sync	✓	✓	✓	✓	-
Google Calendar Sync	✓	✓	✓	✓	-
Google Contact Sync	✓	✓	✓	✓	-
Windows SmartPhone and PocketPC Sync	✓	✓	✓	✓	-
+ Email & SMS Campaigns	✓	✓	✓	✓	
Professional Email Campaigns	✓	✓	✓	✓	-
Enhanced Email	✓	✓	✓	✓	-
+ Storage & Security	✓	✓	✓	✓	
Unlimited Data Storage	✓	✓	✓	✓	10 MB
Unlimited Record Storage	✓	✓	✓	✓	5000 records
128 Bit SSL Encryption	✓	✓	✓	✓	None
Audit Trail	✓	✓	✓	✓	None
+ Voice & VoIP	✓				
Vonage, Skype Support	✓	-	-	-	-
VoiceCRM	✓	-	-	-	-

	VoiceCRM *with* *Premium support*	PRO *with* *Premium support*	PRO *with* *Basic support*	PRO *with* *No support*	Free Edition
Click below for details	$39.95/ mo/user	$24.95/ mo/user	$19.95/ mo/user	$14.95/ mo/user	50 Users
+ Features	✓	✓	✓	✓	
Sales Force Automation	✓	✓	✓	✓	✓
Lead Management & Sales Pipeline	✓	✓	✓	✓	✓
Marketing Campaigns	✓	✓	✓	✓	✓
Customer Support & Service	✓	✓	✓	✓	✓
Import & Export Data	✓	✓	✓	✓	✓
Event & Task Management	✓	✓	✓	✓	✓
Group Calendar	✓	✓	✓	✓	✓
Call Tracking & Automation	✓	✓	✓	✓	✓
Document Mgnt & Shared Folders	✓	✓	✓	✓	✓
Extensive Customization	✓	✓	✓	✓	✓
Product & Sales Dashboards	✓	✓	✓	✓	✓
Knowledgebase and Team Tools	✓	✓	✓	✓	✓
Web API Web Services	✓	✓	✓	✓	-
Alerts and Notifications	✓	✓	✓	✓	-
Sticky Lists	✓	✓	✓	✓	-
Saved Import Maps	✓	✓	✓	✓	-
Custom Quick Create	✓	✓	✓	✓	-
No Advertising	✓	✓	✓	✓	-
99.9% Uptime Guarantee	✓	✓	✓	✓	-

Figure 8.FreeCRM Tool compared to its paid counterpart

SIGNIFICANCE OF THE STUDY

The main interest of this study is the adoption of e-commerce among Filipino owned SMEs. Adoption of e-commerce tool like FreeCRM to support SMEs business initiatives and fulfill its business transactions. The prospects of e-commerce adoption have been divided into two choices: whether the business has or has not adopted to open source e-commerce tool like FreeCRM.

Recently, many studies have found that IT innovations such as CRM, ERP and open source systems has been more and more used by SMEs worldwide a

guide to many SMEs in the Philippines. Accordingly, the following points are seen as justifications for the importance of the study:

I. Adoption and diffusion of technology and electronic commerce has allowed companies, particularly SMEs (especially in developing countries like the Philippines) to use this technology to provide their partners with better and wider services, in order to save their time and money (Ernst & Young, 2000).

II. E-commerce adoption will continue to be important Information Technology systems and business topic. There have been no previous studies concentrated on open source e-commerce tool like FreeCRM adoption among Filipino owned SMEs.

III. Practical significance of the study is expected to arise when the research framework is used to empirically appraise the adoption of e-commerce tool, in particular, FreeCRM by Filipino Owned SMEs. The findings will verify the validity and reliability of the research framework. Moreover the findings will provide solid information on the adoption rate among Filipino owned SMEs. Either the ecommerce adoption rate is high or low, the findings will be beneficial for private businesses who may want to encourage the use of the open source e-commerce tool FreeCRM and in its relevant components in SMEs.

DEFINITION OF TERMS

During the course of this study the following terms were used according to the definitions given below:

Agile Programming	Agile programming" or "extreme programming" design methodology, which iteratively collects project requirements, writes thin documentation, and allows designers to build, mostly as parallel efforts.
B2B	Business-to-business
B2C	Business to Consumer
B2G	Business to Government
C2C	Consumer to Consumer
CICT	Commission on Information Communications Technology. A now defunct agency
CRM	Customer Relationship Management software, usually known as CRM, are designed to help companies and their customers get more out of their interactions with each other.
e-Commerce	Electronic commerce, commonly known as e-Commerce, refers to the buying and selling of products or services over electronic systems such

as the Internet and other computer networks.

e-CRM	Web-enabled CRM. It's just traditional CRM with an 'e' in front. Big CRM players like Siebel and Vantive or the ERP crowd such as SAP, JD Edwards and Baan have e-enabled their CRM solutions and this has been called eCRM.
ERP	Enterprise resource planning systems integrate internal and external management information across an entire organization, embracing finance/accounting, manufacturing, sales and service, customer relationship management, etc.
FreeCRM	FreeCRM is a web based software solution for customer relationship management and sales force automation.
FOSS	Free and Open Source Software
ICT	Information Communication Technologies
IDC	International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services.
Likert Scale	A psychometric response scale primarily used in

	questionnaires to obtain participant's preferences or degree of agreement with a statement or set of statements. Likert scales are anon - comparative scaling technique and are uni-dimensional (only measure a single trait) in nature.
MAP	Morph Application Platform a propriety tool made by Morph Labs, it is an add-on tool for CRM implementation
OSECT	Open Source e-Commerce Tool
OSS	Open Source Software
ROI	Return on Investment - (corporate finance) the amount, expressed as a percentage, that is earned on a company's total capital calculated by dividing the total capital into earnings before interest, taxes, or dividends are paid.
SugarCRM	is a customer relationship management (CRM) system that is available in both open source and Commercial open source applications.
SMEs	Small and medium enterprises (SMEs) comprise 99.6% of all registered business in the Philippines

	and employ 70% of the workforce
UNIX	Uniplexed Information and Computing System. (It was originally spelled "Unics.")
XMG	A leading research and advisory firm

CHAPTER 2

REVIEW OF RELATED LITERATURE

FOREIGN LITERATURE

Alex Vörös, the Quality Assurance Manager for Ego Pharmaceuticals Pty. Ltd., said, “We looked at the CRM implementation as an opportunity to rethink the way we run our business and used the best practice blueprints to review the way we do things.” (SAP AG, 2011) It is for the same reason why this researcher has this thesis focused in the SMEs in the Philippines within Makati City, because the researcher sees the opportunity for small businesses to grow thru the help of an open source CRM tool that is free. The researcher wants our SMEs Community to rethink the way they run their business and use the FreeCRM to be productive, grow their business and expand their market. The CRM tool can revolutionized the way SME’s companies manage sales, marketing, and service and add premium features that help automate sales and marketing, manage customers, partners, and developer integration with powerful CRM features for their business.

A case study, on SIM University in Singapore that implemented SugarCRM, an open source tool to solve their current problem of not being able to capture all potential students who enquired in their university programs. Their goal is to increase Customer Service Representative Productivity and effectiveness throughout the sales cycle, enhance collaboration, reduce customer service cost and enhance better customer communication. So they set-

up an on demand SugarCRM tool and it proved to be useful as tracking system. It was also able to centralize and share information. Management can also get a better picture of student information thru weekly summary reports.

This is precisely the reason why the researcher is conducting this thesis so that she can create awareness among SMEs business owners to realize that they don't have to spend so much capital just to have a system in place. The tool "FreeCRM" is free. Here is another case study; the company is Ego Pharma Ltd from Australia. Their challenges are to eliminate manual processing, replaced outdated legacy software and to integrate their best practice. This time they use SAP Business All-in-One and the output of implementation an enterprise-wide visibility of operational information, delivery of operational efficiencies thru automated processing, elimination of physical quarantine of raw materials and provision of modern platform to support business growth.

According to Timothy Jung, A Study of Electronic Commerce and Tourism: e-Commerce System Evaluation and Consumer Behavior In The e-Business Environment, 2008, ".the speed of adoption of technology by both consumers and companies is rapid in the new e-Business environments due to the high-speed development of information communication technology. Therefore, it is suggested that similar survey in view of the critical success factors of e-Commerce systems from both industry and consumer be conducted continuously on a regular basis, for example, twice per year within the same period in order to find out the trends and gaps between two parties." (Jung, 2008)

The main benefit to using an open source business application is that the fully-featured software can typically be customized to fit any business model and budget, ...small businesses with fewer users and a smaller budget can look at the Community (free) versions and go it alone for support, and larger corporations and enterprises can invest in Enterprise (on-premises) or Online (hosted) versions for costs that rival proprietary solutions. In the end, one of the main benefits to the ... open source business applications suite is that you can start small by choosing only a module or two and freely add more at no extra costs later on. That and the fact you can develop your own customized modules or take advantage of the development community's add-on module contributions. (Vangie Beal, 2011)

As much as business trends evolve and change all the time, so does technology. If there is one segment of IT (Information Technology) that has had a lot of innovation and rapid developments in the last ten years, it is Internet technology. Today, there is almost nothing you can't do anymore online. As e-commerce and B2B applications and solutions continue to outgrow their 'brick and mortar' counterparts, a better understanding of the changing trends in Internet technology is essential in today's competitive business world. It could mean increasing your market share in your industry and reaping all the benefits. (Business 5.0, 2005)

Here is another finding from another research study ... this study illustrate that SMEs are implementing fundamental electronic customer relationship management (e-CRM) practices and reaping the benefits from

internationalization. Challenges are few, but center on a preference for face-to-face relationships and a lack of government support. Practical implications – The paper concludes that e-CRM may have to move on to a more strategic and integrated level if SMEs in Northern Ireland are to compete, both locally and globally. (Paul Harrigan, Elaine Ramsey, Patrick Ibbotson, 2008)

E-commerce is one of the most visible examples of the ways in which Information and Communication Technologies (ICT) can contribute to economic growth. It helps countries improve trade efficiency and facilitates the integration of developing countries into the global economy. It allows businesses and entrepreneurs to become more competitive. And it provides jobs, thereby creating wealth (E-commerce and Development Report, 2002).

Thomas Lundqvist, the CRM Practice Lead at Optaros, Inc. said that, “open source software has rapidly established itself as a major competitor to proprietary software in the operating systems and infrastructure software domain. It is now establishing itself as a viable alternative in the business software domain as well. They identified three major reasons why open source is becoming an important force in the CRM space:

I. Customer satisfaction: many companies have had negative experiences in integrating and managing large functionality-loaded CRM packages (e.g. Siebel, PeopleSoft, and SAP). Companies want to return to a flexible, manageable CRM solution that offers a low total cost of ownership, minimal vendor lock-in and an open architecture allowing the system to grow as the business grows.

II. Open source and open standards: Open source CRM – through open source and open standards – provides unmatched flexibility in terms of modifications and integration standards, and is in many cases a "more than good enough" starting point, bringing in the base functionality you need at a low cost, while allowing you to in a straight-forward way implement specific functionality.

III. Application Assembly: Open source enables you to evaluate products and components hands-on, and gives you the freedom to assemble solutions from pre-built components – basically opening up a middle way between the classical approaches of package implementation and customer development.” (Thomas Lundqvist, 2006)

On the other side, it must also be mentioned some of the issues that an SME’s might encounter in implementing an open source CRM tool like FreeCRM. Here are some of the major issues relating to CRM failure are the following:

i. Difficulty in measuring and valuing intangible benefits.
ii. Failure to identify and focus on specific business problems.
iii. Lack of active senior management sponsorship.
iv. Poor user acceptance.
v. Trying to automate a poorly defined process.

Failure rates in CRM from 2001-2009:

i. 2001- 50% failure rate according to the Gartner group
ii. 2002- 70% failure rate according to Butler group

iii. 2003- 69.3% according to Selling Power, CSO Forum

iv. 2004- 18% according to AMR Research group

v. 2005- 31% according to AMR Research

vi. 2006- 29% according to AMR Research

vii. 2007- 56% according to Economist Intelligence Unit

viii. 2009- 47% according to Forrester Research

Differing measurement criteria and methods of the research groups makes it difficult to compare these rates. Most of these rates were based on customer response pertaining to questions on the success of CRM implementations."

It should also be noted what Jonathan Cline said in his article, "The Fundamental Problems in Open Source — what's the Bio Fix?" – December 3, 2008 (aside from listing some of the issues he is also kind enough to mention how it will be fixed) "the need for everyone to have expertise in managing a particular software function and to highlight the specific problems with open source I am posing here:

I. Open source has a documentation problem. The designers usually don't document the parts in either user documentation or design documentation.

II. Open source has an expertise problem. The users are required to dig deep into the part internals, in order to find bugs or to figure out how to properly connect or optimize the parts.

III. Open source has a debugging problem. The users are required to design & build part internals necessary for debugging which should have been written a long time ago.

There are a couple solutions which could help smooth out these problems. These solutions are simple, yet require some effort — and on open source projects, the designers often need extra encouragement in these areas. (Jonathan Cline – December 3, 2008)

1. **WORK ON THE DOCUMENTATION PROBLEM BY:**
   - 1.1 Pairing a good documenter with the designers. The designers are usually focused on the internals, and spending time on "write-ups" is a big distraction.
   - 1.2 Make it ridiculously easy to write documentation. In some cases, good documentation is lacking because the designer could document a part of the design quickly, but "starting up the Word Processing Application takes too long." This is where using web tools helps.
   - 1.3 Begin the documentation before the project starts. Document the design before building anything. This almost always exposes problems in the design, so it's worth doing anyway. (Yet, few designers do this.)
   - 1.4 Create template documentation that allows for "fill in the blanks" writing. This could be a template for a wiki page, or focusing all project

documentation efforts on a single design until very good example documentation is completely polished and available for cut-and-paste.

1.5 Follow the “agile programming” or “extreme programming” design methodology, which iteratively collects project requirements, writes thin documentation, and allows designers to build, mostly as parallel efforts. This way, the documentation evolves with the design (rather than being an “end of project corner-cutting effort”).

1.6 Creating standard ways of including documentation inside the design.

1.7 Archive and publish intermediate results electronically, for later retrieval. In some cases, the original design tests provide chunks of data for later documentation.

2. WORK ON THE EXPERTISE PROBLEM BY:

2.1 Creating open source communities where the original designers stick around. This could mean that they are kept on project mailing lists, or register accounts on project web sites, or transition into “mentor” roles as soon as the design is done.

2.2 Archive the original design discussions (emails, meeting notes, etc.), which should include informal discussion of the design choices.

2.3 Creating a larger community; one primary principle of the “open source bizarre” is that larger communities will offer more help and provide a larger breadth of experience.

2.4 Create a tighter community; reward members for participation and bring community members physically together. This provides more dedication to projects.

3. Allow users to easily contribute their issues back to the designers for quick diagnosis. This is done with bug reporting systems and issue tracking in open source software. (Jonathan Cline – December 3, 2008)

4. WORK ON THE DEBUGGING PROBLEM BY:

4.1 Encourage designers to build testing methods in parallel with the design. This philosophy has many different names: "Design for Test" was a popular name for this method a couple years ago.

4.2 Publish methods of testing the system along with the system itself.

4.3 Pair the design engineers with a test engineer. The test engineer documents and archives results of the tests. This is a different task than a designer's focus, and can be distracting for the designer.

4.4 Have designers use the "unit test" design method where possible, where each part is designed to work with a specific test. When the design is published, the unit test is also published. If the design is enhanced, then the unit test is also enhanced. (Jonathan Cline – December 3, 2008)

The researcher would like to further open the view of SME's to what they can expect in implementing an open source CRM tool like FreeCRM. The researcher

has exposed its credits as well as its problems and a few solutions in the hopes that she can further influence and define its course and direction.

The researcher has conducted, looked at issues and literature reviews that have been done before and exposed both the open source CRM tool strengths and weaknesses. Despite the fact that implementing both open source CRM tool like FreeCRM would have consequences and eventual pay-off it is still important for SME's to acquire this tool. Underlying thought is that companies realize that they can supercharge profits by acknowledging that different groups of customers vary widely in their behavior, desires, and responsiveness to marketing. Loyal customers can not only give operational companies sustained revenue but also advertise for new marketers. To reinforce the reliance of customers and create additional customer sources, firms utilize CRM to maintain the relationship as the general two categories B2B (Business-to-Business) and B2C (Business-to-Customer or Business-to-Consumer). Because the needs and behaviors are different between B2B and B2C, the implementation of CRM should come from respective viewpoints."

It is also interesting to note what Danny Brown said in his article, ("Why CRM Is Important", 2008-09-19) - "If you've heard of Customer Relationship Management (CRM) and wondered why it's so important, it's simple. No matter what business you're in, unless your customers are happy you won't succeed, and this is why CRM is so important. More important than sales, or marketing or any other part of the company it wouldn't survive without customers. Yet customer relationship management is still low on the priority list of so many companies today. He

advises that if one has to maximize his businesses potential, he need to know what his customers are thinking. If he feels that your customers must be happy because his profits are up, it may have more to do with a recent price rise as opposed to them actually buying any more products from him. Additionally, if he has a change in personnel, is it going to affect a relationship with an existing customer? This is where good CRM comes into its own. If the result of a salesperson leaving means his company is going to lose business from a particular client, you can stay one step ahead of this by smoothing the waters with that particular client, assuring them their service won't suffer accordingly. What priority should be given to CRM? Depending on the size of the company, it will obviously have different priorities and goals. A small company, for instance, may be focused on building its existing client base, whereas a larger company may have its priorities in expanding globally. Without a strong existing and loyal customer base, these plans and ideas would simply be that - plans and ideas, difficult to implement within the current climate. However, by using customer relationship management, he can ensure that he has a strong customer base to build from. After all, the best form of advertising is still word-of-mouth; keep his customers happy, and he'll soon see your business grow." (Brown, 2008)

It is the researchers' hope that this literature has in many ways contributed to the understanding of the open source CRM tool like FreeCRM for the SME's in the Philippines in Makati City, and hopefully it was able to relate it's fundamental and the researcher audience finds it useful.

LOCAL LITERATURE

Nowadays, times are rough everyone is finding ways to get the cheaper rates, and if possible get it for free. The government for its part is also doing its own belt tightening; Budget Secretary Florencio Abad said President Benigno Aquino III wants to bring down the overhead expenses of government so that they can use the savings for capital outlay. Abad also said that P8 billion could be saved over three years by adopting open source technology. “We don’t have to pay anything… that’s just for software subscriptions. (AMITA O. LEGASPI, 2011).

Without much marketing hype or commercial machinery, free/open source software (FOSS) is already making inroads in the Philippine information technology (IT) industry. Some 800 hardware manufacturers, programmers and software developers, FOSS advocates and businesses supporting FOSS converged last 17 to 19 August 2004 in Manila, Philippines for the Philippine Conference on Open Source. They discussed how open source could be integrated into their businesses, while some called on the government to enact a policy in support of open source. (WE!, 2004)

Currently, the government is looking into, (ELR, GMA News, 2011). "adoption of open source software by government agencies, business and other sectors well for pending legislation on open source, according to Representative Sigfrido R. Tinga, chairman of the House committee on information and communication technology (ICT). Tinga, told GMA News Online Saturday at the Software Freedom Day program at the University of Santo Tomas (UST), that

"government is not usually an innovator when it comes to technology," but he assured that his committee will act on ICT measures. Tinga said it is only a matter of time before open source technology gains wide acceptance in the country. He added that some technology solutions being offered these days could soon be rendered obsolete by open source. In the House, the only measure filed about free and open source software (FOSS) is House Bill 1011 of Bayan MunaPartylist Representative Teddy A. Casiño. The counterpart in the other chamber of Congress is Senate Bill 2821 of Senator Manuel B. Villar."The government will continue to be dependent on proprietary and foreign software technologies unless it actively supports FOSS initiatives and gives preference to the use of FOSS in institutions," said Rick Bahague, national coordinator of the Computer Professionals' Union, also at the Software Freedom Day activities in UST.

EXECUTIVE BRANCH INITIATIVES - Last July, Budget Secretary Florencio Abad said the Aquino administration is seriously considering adopting open source technology, especially because of the potential for significant cost savings. Trade Secretary Gregory Domingo has taken on the task of studying the open source matter further.

In his budget message for the proposed 2012 General Appropriations Act, President Benigno Aquino III said his administration has "focused P2.9 billion to support major ICT projects that promote transparency and accountability in government operations and more responsive front line services." Aquino enumerated major ICT projects of the Bureau of Customs, Bureau of Internal

Revenue, Department of Environment and Natural Resources, the Supreme Court, Commission on Elections, and the government procurement system. However, the budget message did not mention any software policy or ICT subscriptions plan of government.

ICT STRATEGIC PLAN - Included in the Philippine Digital Strategy 2011 – 2016 is an entry espousing the creation and promotion of “open source applications for national government agencies and local government units where appropriate and provide appropriate training. “The agency that presented the master plan, the Commission on Information and Communications Technology (CICT), was abolished shortly after the plan was unveiled and what remained of the agency was placed in an ICT office under the Department of Science and Technology. Science Secretary Mario Montejo has assured that his agency adopted the Philippine Digital Strategy."

In today's tough environment, converting the most promising prospects to customers and current customers into loyal patrons has become more important than ever. Whether the business is big or small, it would need your marketing, sales and customer service people in sync and this can only be done with having a Customer Relationship Management program and system in place. (Jan Pabellon, 2009)

Companies who had early adoption to CRM tools like Chinatrust have this to say, “But the amount is definitely worth it,” said Tony Robles, executive vice president and head of retail banking group at Chinatrust. The CRM’s implementation is an effort of the bank to improve its management of customer

inquiries, minimize customer complaints, and better leverage on the bank's call agents. Chinatrust said it needed the solution to better manage the tremendous increase in the uptake of its personal loan products. Instead of expanding its contact centre operations, the bank opted to look into automating its processes to improve productivity and keep investment and operational cost low. (Manila Bulletin Publishing Corp., 2009) They implemented SAP CRM.

Here's another case study from, Uniliver Philippines Commercial Director, Efren Samonte said that, "Prior to the implementation, our customer and consumer care officers browsed through thick books, brochures, various on-line databases, and reports to answer customer inquiries. Now, they can click on any Unilever product on their computer screen, and data about the particular item automatically comes up. This significantly enhances our agents' ability to respond to customer inquiries fast, accurately, and completely." They implemented SAP CRM.

The on-demand CRM is aimed at organizations that do not have an IT staff like SME's and are comfortable with using open source software. The fully managed hosted solution includes administration of both the software and infrastructure, Guy Naor, Morph Labs' chief technology officer, said in a statement. "No installations, no licensing, and absolutely nothing to manage at the backend," he said. "With an on-demand CRM running on the MAP, companies not only reduce the risks and costs typically found in complex, costly CRM implementations, they also ensure the availability of the application. "In a recent survey, Gartner said that the priorities for CIOs are to reduce costs and

improve business processes. “Faced with these challenges, businesses will have to find ways to simplify innovation," said Damarillo, Morph Labs’ CEO, added in a statement. “Our solution enables customers to quickly and easily use a CRM application, minimizing costs while providing immediate value." (GMANews.TV, 2009)

Earlier on the local literature the researcher have emphasized the need for cost saving measures and how open source tools can help in alleviating crisis, CRM tools implemented in companies and how it helped and improved their businesses. SME’s must now face the choice of adoption or take a backseat in these offers. The open source CRM tool like FreeCRM is the current most viable tool for the SME’s in the Philippines NCR Region. Free CRM is a web based software solution for customer relationship management and sales force automation. This tool will help SME’s manage their contact and track lead, manage sales and contact, sales pipeline and forecasting, manage customer service and business management. This open source CRM tool can also automate sales processes and close more deals, forecast revenue and share sales reports. Thru this tool SME’s can track leads, prospects, opportunities and close more deals in less time. And it’s for free. The choice is up to the SME’s whether to get an open source CRM tool or not a variety of tools are presented to them. But clearly it’s time for them to adopt in order to survive the ever changing business climate.

There is another item worth mentioning I would like to ask “Will the government help?” (Melvin G. Calimag, 2009) Asked if a government-mandated

adoption of OSS would hasten its growth in the Philippines, IT pundits have varying opinions. IT expert Paraz said OSS should compete on its own merits. He added that deploying open source does not also necessarily mean lower cost because there is also implementation and support costs to consider. However, he added that vibrant OSS adoption could, in fact, stimulate--rather than adversely affect--the local software economy. To help extend the technology's reach, XMG suggested that OSS players should follow in Microsoft's footsteps and deploy a rich user experience to drive adoption. IDC and Springboard added that open source vendors should provide assurance regarding support services, and educate the market on how such services can reduce risks--whether real or perceived--involved with OSS adoption.

FOREIGN STUDIES

The following studies will show adoption of e-Commerce in foreign countries:

E-COMMERCE STUDIES IN JORDAN

According to Aladwani (2003), Internet security was ranked the first concern of customers and business managers in Arab counties, such as Jordan in regard to the use of e-commerce. The following studies of e-commerce and e-banking adoption are of particular relevance to Jordan. A study, conducted by Sahawneh (2002) among 31 organizations using survey method, found that many factors hinder e-commerce success in Jordan, based on the viewpoint of the participant's organizations. The first is cultural resistance, which prevents the

consumer from using the Internet for trade with unknown and/or unseen parties. Other influencing factors include trust, risk and security. He states there is an absence of security and legal mechanisms to protect transactions and consumers from deceit. In addition, there is a lack of awareness in organizations of e-commerce benefits. He found that language is another limiting factor, because the local language is Arabic and the majority of websites are in English. A limitation of Sahawneh's study was that it investigated only the opinion of companies. Customers were not consulted, so it is difficult, for example, to judge whether they had problems with language or to assess their level of knowledge about e-commerce websites. However, this study was conducted in 2002, and e-commerce has progressed substantially in the subsequent years since the study. For example, many websites now support two languages, especially those that are initiated from Jordan and other Arab countries. (Mohanad Ali Halaweh, March 2009).

E-COMMERCE STUDIES IN PORTUGAL

The study reported in this thesis was one of the first in Portugal to document the adoption of e-commerce by consumers. Several researchers (e.g. Anandarajan et al., 2002; Eastin, 2002; Pavlou, 2003) have pointed out the need to study e-commerce adoption in countries where computer and Internet adoption rates are not as high as in the most developed countries. Hence, this research contributes to a greater understanding of the adoption of ecommerce in

a different technological context than that provided by most previous research. (Luis Miguel Moital Rodrigues, March 2006)

E-COMMERCE ADOPTION IN DEVELOPING COUNTRIES

This study has limitations despite general support for the model. First and foremost, given that this is a preliminary attempt to understand user behavior in e-commerce adoption in developing countries, the respondent sample may not be representative of the population.

Future research needs to revisit the arguments, particularly in the light of mobile ecommerce. In reviewing the referent literature, Donner (2008) notes the evolving landscape of mobile ecommerce in developing countries. The author remarks on how a surge in mobile e-commerce is providing voice and access to those marginalized by a lack of access to other ICTs. Responses that drive our results are perceptions captive to, and often tainted by, socio-economic disparities and constraints. Avgerou (2002) rightly remarks how ICT and e-commerce adoptions in developing countries 'suggest slow and tortuous processes with ambiguous outcomes'. Even for continents home to a majority of developing countries, internet penetration statistics are dismal: 5.3% in Africa, 15.3% in Asia, and 24.1% in Latin America and the Caribbean (Internet World Statistics, 2008). Stagnant economies, a lack of surplus income (including rampant subsistence and poverty), failing infrastructure, and unreliable governance, accounting, and payment mechanisms are everyday realities in which adoption decisions are made. **(**Pratim Datta, 2009**)**

LOCAL STUDIES

"The scale of e-commerce remains very much a big business affair, the bulk of which are business-to-business (B2B) transactions involving major retailers and multinational corporations. And while there are the likes of successful dotcom upstarts as Divisoria.com and Pinoydelikasi.com, business-to-consumer (B2C) transactions, most of which are online shopping, is lorded over by the likes of the Ayala.com, an Ayala Group of Companies venture that claims to be the largest online shopping mall in the country. Now called Regalo, Ayala started out with two other components: a virtual flower shop (flowershop.com.ph), the first of its kind in the country, and a ticket reservation and information center for Ayala cinemas (Sureseats.com).Small and medium enterprises (SMEs) continue to lag behind big business and multinationals in e-commerce adoption. "In other countries, e-commerce is the way of business," says Russelle Trinidad, sales and marketing head of SME.com.ph, an electronic community for SMEs. "In the Philippines, it's only during the last quarter of last year to early this year that SMEs have become aware of e-commerce."

Since 2000, in fact, only three out of SME.com.ph's 300 members have been conducting business online: Godiva Skin Care, VMV Hypoallergenics, and recently Regalo Service. As late as 2006, a Philippine Institute for Development Studies (PIDS) paper pointed out that the country's e-commerce would continue to be in the doldrums mainly because of four reasons: One, local SMEs still lack the capacity and knowledge to adopt and effectively use e-commerce. Two, our

e-commerce law is silent as far as domain names, intellectual property rights, and a host of other security issues. Three, there is low telephone density and Internet and PC penetration compared to other countries despite existing infrastructure. Fourth, there's an absence of a more comprehensive set of indicators for measuring usage, readiness, and the impact of e-commerce.

The PIDS study also noted that the Philippines has been left behind by its Asian neighbors, with Thailand and Indonesia ranking higher in terms of e-commerce usage by businesses, particularly in the areas of online banking and e-buying. This is even though all three countries began using the Net at about the same time in the mid-1990s (and actually much later in the case of Indonesia).There is even a low level of adoption of computers in business — particularly by SMEs — that is reflected in the country's PC penetration rate. According to an April 2006 paper by the British-based Economist Intelligence Unit (EIU), that rate was just over two percent in 2005, or 1.75 million PCs for 87 million Filipinos. Of this number, only half were in business establishments, says Janette Toral, owner of the e-commerce research site DigitalFilipino.com. Toral argues, however, that e-commerce in the Philippines is underrated. She says that B2B and B2C transactions are only half the picture, and points to business to government (B2G) transactions, primarily tax collections of the Bureau of Internal Revenue from about 15,000 companies through its electronic filing and payment system, that generated nearly P275 billion in 2005 alone. Yet it seems more accurate to look at e-commerce performance from the private sector's view. According to the International Data Corporation, the value of e-commerce in the

country in 2005 was at $3.5 billion, and that was on the strength of less than 5,000 companies that were actively using e-commerce in their business.

Dominating the e-procurement scene was BayanTrade.com, a joint venture involving six leading local conglomerates: Philippine Long Distance Telephone Company, Aboitiz, Ayala Corporation, United Laboratories, JG Summit, and BenPres Corporation. There was also SourcePilipinas.com, a multi-industry B2B e-marketplace joint venture, while procurements of the pharmaceutical and medical supply industries are handled by a regional online medical marketplace called Asiarx.com. Meanwhile, B2bpricenow.com has emerged as a trading portal of over 4,000 member-cooperatives that provide them with price updates and other market information in the areas of agriculture, consumer products, and industrial manufacturing.

As for B2C transactions, Ayala.com has been joined by other retail big boys like SM Supermarket and Rustan's, both of which sell groceries online. (At present, though, both have temporarily discontinued their services to address issues with their online payment systems.) B2C exchanges also involve online banking (of which the Ayalas' Bank of the Philippine Islands is a pioneer and industry leader), travel bookings (for Philippine Airlines, Cebu Pacific, and Air Philippines domestic and international flights), bills payments, auctions in the mold of EBay, and book retailing a la Amazon.com (PowerBooks, Goodwill, and PhilbookClub).

Yet industry insiders are not the only ones who are suddenly gung-ho over e-commerce in this country. Even the EIU has predicted e-commerce to grow

dramatically in the next three years, the rapid increase in Internet use being its main driver.

In 2006, there were already 14 million Internet users, or 16 percent of the country's total population, according to Yahoo! This was expected to grow to 20 million by last 2007. (International Data Corporation already put the number of Internet users at 19.2 million by mid-2005. It is expected to grow to 24 million this 2008, says AC Nielsen.) Internet users include all those who access the Net regularly, whether at work, home, in school, and in Internet cafés. Contributing to the growth of Netizens is the rise in the number of mobile-phone subscribers, numbering 47 million at the end of 2006, already more than half of the country's total population. Broadband Internet use by businesses is also increasing as gleaned from the 22,500 connections in 2005, as reported by the Commission on Information and Communications Technology (CICT), up from 10,500 connections in 2004. By 2009, Siemens estimates broadband subscribers to reach one million. Another important factor fueling the renewed optimism in Pinoy e-commerce is PayPal's entry into the country, along with the improved alternative modes of online payments that creative Filipinos came up with while waiting for the global leader to come in. One of the reasons why e-commerce has not been able to take off is due to the lack of a reliable system to process online payments. When it started, for instance, Island Rose had to use a U.S.-based merchant account to accept credit-card payments. Owing to the prevalence of fraudulent transactions traced to the Philippines, PayPal became available to Pinoy Net users only in October 2006, and even then obliged them to sign up for

an account using U.S.-accredited credit cards. Then last September, PayPal finally opened its Philippine office. Today, local users are allowed not only to load up their accounts through their credit cards, but also to receive funds and withdraw these into their local bank accounts. Fortunately, in PayPal's absence, payment schemes that ranged from the use of banks' ATM (asynchronous teller machine) facilities to remittance services, to mobile-phone payment platforms thrived. These alternatives also took into account the small credit-card market in the country. Thus, in lieu of credit cards, overseas buyers pay for products via remittance services offered by YesPinoy, Xoom, MoneyGram, and Western Union. Or if the amounts involved are small, they issue payments through their mobile-phone credits like PayFree, Globe Telecom's G-Cash, and Smart Padala.

Lifestyle portal Yehey! even launched its initial e-commerce service, PayPlus+, in 2001 in partnership with BancNet, and later with MegaLink. Payplus+, explains Yehey! E-commerce manager Jonas de los Reyes, considering a payment solution for the 18 million Filipinos who have ATM cards as compared to about six million who own credit cards. Last year, it was rebranded as Kaban, a one-stop payment solution enabling online entrepreneurs to accept payments through ATM, credit card, and e-cash. Kaban has since become the payment system of choice of 13 online merchants, offering a diverse array of products and services from pastries (Goldilocks with its Padala Program) to shoes (Melissa Philippines), to training for call-center applicants (Powers Inc.). MedicardPhilipines, a health-maintenance organization, allows membership applications online via Kaban. So does Outbound Asia, a staging and multimedia

production house, for online registration for the events it manages. SMEs like Qube PC, a Quezon City computer shop, also provide Kaban in its menu of payment options.

Of course, there have been systems developed for users of credit cards — which is, after all, the universal payment mode for e-transactions. Among the local crop are Union Bank's The Port, Mozcom's PayEasy, and Equitable-PCI Bank's Equitable Card Network. Other regional and global third-party providers now servicing online merchants locally are AsiaPay, CCNow, Website Wizard, YesPayments, Your One Stop Shopping Network (YOSSN), Payment Processing Corporation, and Asia Pacific E-Serv Corporation. But it's still a relatively tiny market, says ex-banker Mary Anne Tolentino, board chairman of the Philippine Internet Commerce Society, a nonprofit group of small entrepreneurs and big corporations. She adds that the state of the country's credit infrastructure is a major problem.

"To do business internationally," she also says, "you need a credit card. But the market of credit-card companies in the Philippines is for people who are employed, not SMEs." For the credit card-holder base to expand, Tolentino says a centralized credit bureau like those in the United States, Europe, and Singapore should be set up. This would gather consumer-credit information from banks, credit-card companies, and government lending institutions. Without reliable credit information, financial institutions have been hesitant to extend credit to small borrowers like SMEs. (Such a centralized credit information system is the subject of a proposed bill authored by Senator Edgardo Angara.)All

these mean that significant amounts of investment are needed to get into e-commerce. As Toral writes in her website, a “fully blown e-commerce website with a full blown e-payment, staffing, marketing tools, logistics program, and risk management in place can easily cost $20,000 as first-year investment.” This, she adds, is on top of back-end software applications like spreadsheet programs for their accounting, sales, and resource planning needs. But Toral says e-financing programs are now available to facilitate participation of SMEs in e-commerce. The Department of Trade and Industry’s SME-FIT program, for one, provides credit lines to accredited IT companies for use in financing hardware, software, website, and customized application development to be made available to SMEs in easy payment terms. SMEs wanting to ride the e-commerce train would also do well to take heed of the learning curve that the likes of Island Rose and Divisoria.com have gone through. For Divisoria.com’s Romano, there’s a better chance of success for those who can offer any or all of the following: convenience, availability, and price.

“In terms of convenience, Cebu Pacific made headway by offering an online ticketing system,” he says. “As for availability, why do Filipinos shop with Amazon even with the added cost of shipping? Because they offer books that are not available locally.”

As for price, the 42-year-old marketer cites the case of local professional photographers who shop on EBay or B&H Photo because the items there are still much cheaper even with added shipping charges. But Romano also stresses the importance of advertising and promotions, since potential clients should first

know that a particular website exists, and how to access it. When he launched Divisoria.com, Romano made sure he had advertising support in the form of a banner ad on Inquirer.net, which, he says, remains the “most cost-efficient and fastest medium to generate awareness (about products and services) among overseas Filipinos.”

Island Rose’s Andaya, for his part, believes that having a solid business model, a clear value proposition, and good customer service can only help an online business thrive. “To make e-commerce viable,” he says, “all we need is more entrepreneurial spirit. We already have everything we need.”

Such entrepreneurial drive is actually at play in many personal sites and blogs hosted in social networking services as Multiply where users are selling and buying items among their network of contacts. Yehey!’s de los Reyes says this is the beauty of the Internet at work — and proof that anyone, however small, can go head to head with big companies online. He even says individual entrepreneurs and SMEs have an edge because they can easily adapt to new technologies. There’s also no big capital needed, unlike having an actual store. “The secret,” says de los Reyes, “is in finding a niche, a product that is not competing with another store or brand.”

But security is still an issue, especially if one’s online store is targeting overseas clients. In 2003, fraudulent credit-card transactions by members of a Filipino community website were uncovered after the access point was traced to an Internet service provider in the Philippines. This led to the arrest and filing of cases against three individuals. That is why among Toral to-do list includes

batting for an efficient cybercrime program. This entails providing law enforcement agencies with a regular allocation in their budgets so these could help citizens and merchants in combating fraud and cybercrime.

For Tolentino though, security is not a major stumbling block. “Yes, you need more secure tools, and laws, but even without those, people were not discouraged from engaging in e-commerce.” She says what is key is educating everyone about e-commerce. And it surely won’t just be about security measures, but on the whole issue of conducting business online.” (Alecks P. Pabico, February 28th, 2008)

SYNTHESIS OF THE REVIEWED LITERATURE AND STUDIES

In summary, the various literature and studies reviewed shows that certain patterns have emerged. e-Commerce system, an open source CRM tool like or any system in particular will have to start from introduction or infancy before the masses will take it seriously and once it has proven its worth no matter what nation or country it is, if they find it useful they will adopt to it. However, there are also circumstances when adoption is slow like in the developing countries where sometimes internet is non-existent and people are not at all exposed to technology. What these literature have also uncovered is that language could also be a barrier to e-Commerce adoption for instance in the Arabic region.

Now is the best time for SMEs in the Philippines in Makati City to adopt the use of open source CRM tool like FreeCRM or any other system that suits their need. Now is the best time to compete in the international market, so that

SMEs can widen their perspective in business and be more self-reliant. Whether SME's can get support from the government or not it's time for them to go beyond their comfort zone and use technology to make their business more productive and forward-looking. In our current environment we are very lucky because we have the necessary tools to communicate and compete in the global arena, the researcher realized that there are countries that are very limited in terms of facilities and not even exposed to technologies we are enjoying today so we must take advantage and improve on it. Opportunities abound and it's up to us to capture it.

CHAPTER 3

RESEARCH METHODOLOGY

METHODS OF RESEARCH

The study made use of descriptive method of research, the purpose of which is to describe the nature of situation as it exist at the time of the study and to explore the causes of particular phenomena (Travers, 1978).

Descriptive research usually makes some type of comparison, contrast and correlation and sometimes, carefully planned and orchestrated descriptions of the cause and effects of the relationships maybe established to some extent .(Padua and de Guzman-Santos, 1998)

SAMPLE SIZE

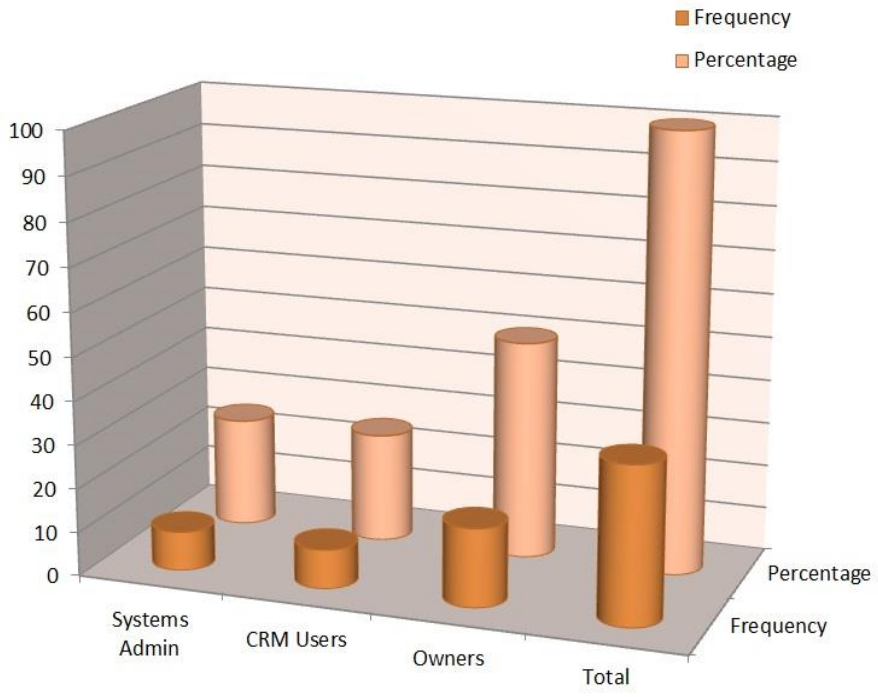
Sample size of 36 was determined by using Convenience sampling it's a Non-probability sampling technique where subjects are selected because of their convenient accessibility and proximity to the researcher (Hair/Wolfinbarger/Ortinau/Bush, 2007).Table 1 presents the frequency and percentage distributions of the respondents. Shown in the table are nine (9) Systems Administrators, nine (9) CRM users and eighteen (18) Owners. These are the collection of respondents who participated in testing of the OSECT (FreeCRM) and filled out the online survey questionnaire posted in the web.

TABLE 1

FREQUENCY AND PERCENTAGE DISTRIBUTIONS OF THE OSECT (FREECRM) RESPONDENTS ACCORDING TO GROUPS

Respondents Group	Frequency	Percentage
Systems Administrators	9	25.0
CRM Users	9	25.0
Owners	18	50.0
Total	36	100.0

FIGURE 3. TABLE 1 GRAPHICAL PRESENTATION



DESCRIPTION OF RESPONDENTS

Tables 2 to 4 exhibit the frequency and percentage distributions of the respondents according to their gender, occupation and industry.

TABLE 2

FREQUENCY AND PERCENTAGE DISTRIBUTIONS OF THE OSECT (FREECRM) RESPONDENTS ACCORDING TO GENDER

Gender	System Administrator		CRM Users		Owner	
	Frequency	**Percentage**	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Male	8	88.9	4	44.4	11	61.1
Female	1	11.1	5	55.6	7	38.9
Total	9	100.0	9	100.0	18	100.0

Table 2 shows that majority of OSECT (FreeCRM) respondents who are system administrators are male, owners are also mostly male and with the CRM users the gender is almost equally distributed.

FIGURE 4. TABLE 2 GRAPHICAL PRESENTATION

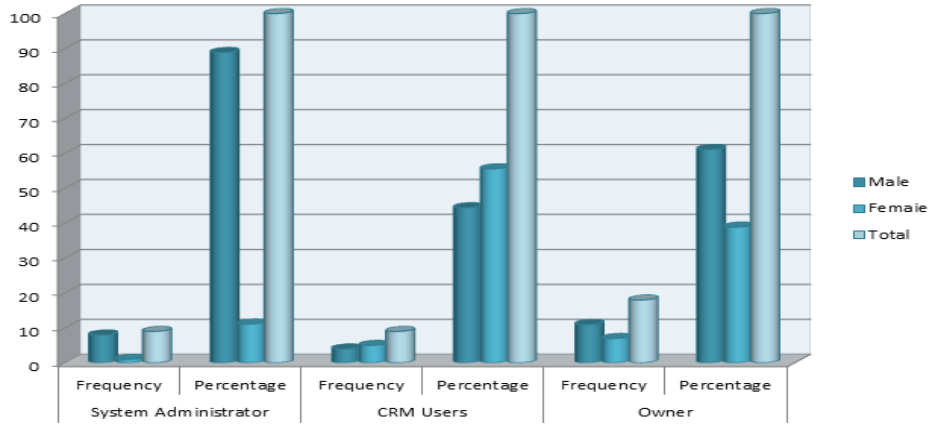


TABLE 3

FREQUENCY AND PERCENTAGE DISTRIBUTIONS OF THE OSECT (FREECRM) RESPONDENTS ACCORDING TO OCCUPATION

Occupation	Frequency	Percentage
President	1	2.8
Owner	17	47.2
Sales	6	16.7
System Administrator	9	25
Vice President	1	2.8
HR Manager	1	2.8
Senior Export Merchandiser	1	2.8
Total	36	100

Table 3 shows that the majority of OSECT (FreeCRM) respondents are owners, with 47.2% Percentage, followed by the system administrator with 9 respondents, and sales with 6 respondents. There is only one president, vice president, hr manager and senior export merchandiser.

FIGURE 5. TABLE 3 GRAPHICAL PRESENTATION

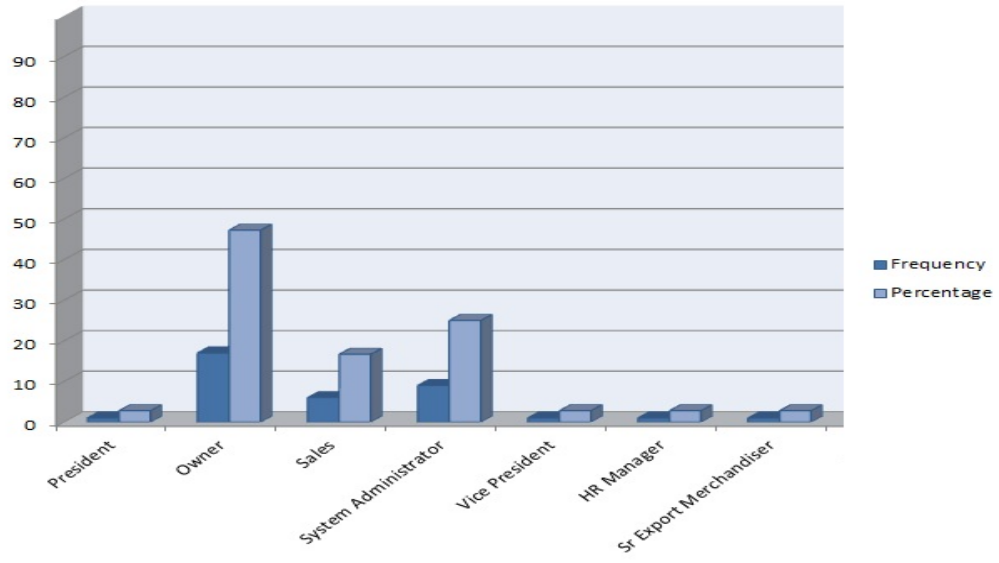


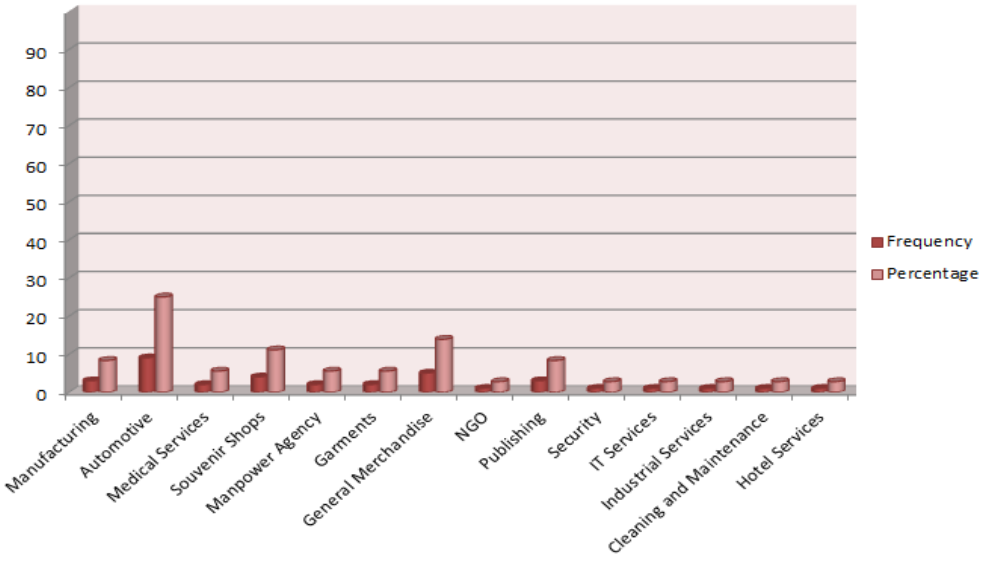
TABLE 4

FREQUENCY AND PERCENTAGE DISTRIBUTIONS OF THE OSECT (FREECRM) RESPONDENTS ACCORDING TO INDUSTRY

Industry	Frequency	Percentage
Manufacturing	3	8.3
Automotive	9	25.0
Medical Services	2	5.6
Souvenir Shops	4	11.1
Manpower Agency	2	5.6
Garments	2	5.6
General Merchandise	5	13.9
NGO	1	2.8
Publishing	3	8.3
Security	1	2.8
IT Services	1	2.8
Industrial Services	1	2.8
Cleaning and Maintenance	1	2.8
Hotel Services	1	2.8
Total	36	100.0

Table 4 demonstrates that the OSECT (FreeCRM) industry respondents are mostly coming from the automotive, with 9 respondents, about 5 respondents are coming from the general merchandise, 4 from souvenir shops, 3 from publishing and manufacturing, 2 from medical services, manpower agency and garments, one for the NGO, security, IT services, industrial services, cleaning and maintenance and lastly hotel services.

FIGURE 6. TABLE 4 GRAPHICAL PRESENTATION



ANALYSIS OF DATA ON RESPONDENTS DESCRIPTION:

A. The respondents groups in Table 1 exhibits that 50% were Owners. It is likely that the researcher using the Convenience sampling method have approached more owners than the 25% respondents who are from System administrator and CRM users group.

B. The respondents in Table 2 determined that there are about 88.9% Male who are Systems Administrator, and 11.1% Female, it also determined that there are about 55.6% Female CRM Users and 44.4% Male, and also there are 61.1% Male who are Owners and 38.9% are Female. It is likely that the researcher have approached more Male respondents more so than Female respondents.

C. The respondents in Table 3 determined that majority are Owners, about 47.2%, followed by the System administrator at 25.0% and sales at 16.7%. Again, it is likely that while using the Convenience Sampling method the researcher have approached more Owners the other Occupations listed in Table 3.

D. The respondents in Table 4 determined that about 25.0% came from the Automotive industry, 13.9% from the General Merchandise, 11.1% from Souvenir Shops and the rest of the other industry ranges from 8-2%. It is likely that the researcher while using the Convenience Sampling method have approached the following above listed industry which is within the proximity of the researcher's residence.

RESEARCH INSTRUMENT

The researcher used a questionnaire checklist uploaded in an online survey provider (Kwiksurvey.com). This checklist was prepared to determine if the OSECT (FreeCRM) tool is acceptable in terms of the respondents needs such as business requirements, cost, ease of use and reliability. The typical five levels Likert scale is use in this study and all questions are answerable by Highly

Acceptable, Moderately Acceptable, Acceptable, Fairly Acceptable and Unacceptable.

DATA-GATHERING PROCEDURE

The instrument used in the data collection is a questionnaire carefully drafted by the researcher. After the drafted questionnaire was completed it was submitted to the researcher's adviser for corrections and suggestion for improvement. The questionnaire was pre-tested after the research adviser's approval. Pre-testing is necessary to measure the questionnaire's validity and to evaluate the clarity of the terms, the difficulty of answering the questions, ease in tabulating responses and other problems.

After pre-testing all necessary changes and adjustment should be applied and the questionnaire will be then again submitted to researcher's adviser for approval. Once approved the questionnaires will be sent for circulation to the assigned respondents.

The questionnaire is intended for owners, system administrators and CRM users to gauge FreeCRM tool acceptability and applicability to the selected respondents. The numerical rating in (Table 30) will indicate the corresponding agreement on the tool.

TABLE 30

ACCEPTABILITY NUMERICAL RATING

Numerical Rating	Level of Acceptability
5	Highly Acceptable
4	Moderately Acceptable
3	Acceptable
2	Fairly Acceptable
1	Unacceptable

STATISTICAL TREATMENT OF DATA

The following statistical tools were used in the presentation and analysis of data gathered in the study:

1. **PERCENTAGE AND FREQUENCY DISTRIBUTION**. The frequency and percentage distributions were used to describe the profile of the respondents. In general a frequency distribution is any arrangement of the data that shows the frequency of occurrence of different values of the variable of the frequency of occurrence of values falling within arbitrarily defined ranges of the variable, known as class intervals (Ferguson and Takane, 1969, p18). The frequency was converted into percentage, a point measure in scale where the distribution is divided into one hundred equal parts.

   The formula of obtaining percentage is :

   $$\% = f/n * 100$$

   Where % = percentage

   f = frequency

   n = total number of respondents

2. **WEIGHTED MEAN** ($\overline{X}_w$). A measure of central tendency, the weighted mean is a form of arithmetic mean that gives different observations on equal weights in accordance with their unequal relative importance. (easycalculation.com) The weighted mean was employed to determine, the extent of applicability, assurance and acceptability of the FreeCRM

tool in terms of the respondents business requirements, cost, ease of use and reliability. The formula is:

$$\bar{X}_w = \frac{\sum fw}{n}$$

Where $\bar{X}_w$ = weighted mean

f = frequency

x = weight

n = total number of respondents

The computed weighted means were interpreted using the following interval scales (Table 31):

TABLE 31 INTERVAL SCALE OF ACCEPTABILITY

Numerical Rating	Interval Scales	Level of Acceptability
5	4.20 -5.00	Highly Acceptable
4	3.40 - 4.19	Moderately Acceptable
3	2.60 - 3.39	Acceptable
2	1.80 - 2.59	Fairly Acceptable
1	1.00 - 1.79	Unacceptable

3. **STANDARD DEVIATION** – A measure of the dispersion of a set of data from its mean. The more spread apart the data, the higher the deviation. (easycalculation.com) Standard deviation is calculated as the square root of variance. Standard deviation was employed to determine, the variance

and acceptability of the FreeCRM tool in terms of the respondents business requirements, cost, ease of use and reliability. The formula is:

$$\sqrt{\frac{\Sigma(X - \bar{X})^2}{(n - 1)}}$$

where:

X = each score
$\bar{X}$ = the mean or average
n = the number of values
Σ means we sum across the values

4. **PERCENTILE RANKING** –Percentile ranking is defined simply as the proportion of a distribution that a score is greater than or equal to. (easycalculation.com) this was used in the analysis of the data for each table interpretation on the OSECT acceptability in terms of the business requirements, cost, ease of use and reliability.

$$PR = \left(\frac{f_b + \frac{1}{2} f_w}{N}\right) * 100$$

where:

f_b *is the frequency below; the number of scores which are less than the score value of the percentile rank*

f_w *is the frequency within; the number of scores which have the same value as the score value of the percentile rank*

N *is the number of scores*

CHAPTER 4

PRESENTATION, ANALYSIS AND INTEPRETATION OF DATA

This chapter is devoted to the presentation, analysis and interpretation of data. This discussion follows the sequence of the problems stated in Chapter 1.

The object of the OSECT(FreeCRM) survey was to determine the level of acceptability in responding to stakeholders' **business requirements, cost, and ease of use and reliability needs**. The following tables show the questions asked OSECT(FreeCRM) survey. The questions were designed to elicit responses from the users of the system being evaluated.

1. BUSINESS REQUIREMENTS

How do you (as the respondent) assess the level of the tool's acceptability in terms of the following business requirements?

1.1 Record system and Document Management - It is an information storage system (commonly implemented on a computer system).

ANALYSIS OF DATA: Respondents were asked if the proposed system provides record system and document management (see Table 5). Almost half of the thirty six respondents (44.4%) or sixteen respondents found the statement "moderately acceptable" and fourteen respondents (38.9%) found the statement "acceptable". Of the remaining respondents four (11.1%) rated the statement as "highly acceptable" and two (5.6%) rated the statement "fairly acceptable." The weighted mean for this item was 3.611 which can also be

interpreted as this item as “moderately acceptable” and the standard deviation was 0.766. *It can also be interpreted that the OSECT (FreeCRM) Tool’s Record System and Document Management is sufficient and has the necessary details and fulfill the Business Requirements needs of the respondents.*

TABLE 5

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF RECORD SYSTEM AND DOCUMENT MANAGEMENT

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	4	11.1
4	Moderately Acceptable	16	44.4
3	Acceptable	14	38.9
2	Fairly Acceptable	2	5.6
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.611

Standard Deviation = 0.766

1.2 Sales, Leads, Targets, Accounts, Contacts, etc… - This system includes a contact management system which tracks all customer activity and ensures that sales efforts are not duplicated, reducing the risk of irritating the customers.

ANALYSIS OF DATA: Respondents were asked if the proposed system provides sales and contact management (see Table 6). Almost half of the thirty six respondents (47.2%) or seventeen respondents rated the statement as ”acceptable” and fourteen respondents (38.9%) rated the statement as “moderately acceptable”. Of the remaining respondents four (11.1%) rated the statement as “highly acceptable” and one (2.8%) rated the statement as “fairly acceptable”. The weighted mean for this item was 3.583 which can also be interpreted as this item as “moderately acceptable” and the standard deviation was 0.731. *It can also be interpreted that the OSECT (FreeCRM) Tool’s Sales, Leads, Targets, Accounts, Contacts is sufficient and has the necessary details and fulfill the Business Requirements needs of the respondents.*

TABLE 6

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF SALES LEADS, TARGETS, ACCOUNTS CONTACTS

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	4	11.1
4	Moderately Acceptable	14	38.9
3	Acceptable	17	47.2
2	Fairly Acceptable	1	2.8
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.583

Standard Deviation = 0.731

1.3 Marketing, Promotions, Pipeline, Campaigns, etc… - It assists e-commerce enterprises in effectively communicating relevant messages to customers in order to improve sales either directly or indirectly thru the use of campaigns, marketing promotions and pipeline tabs that can be customized for each client or customer.

ANALYSIS OF DATA: Respondents were asked if the proposed system provides marketing, pipeline and campaign management (see Table 7). Of the thirty six respondents (41.7%) or fifteen respondents rated the statement as “acceptable” and fourteen respondents (38.9%) rated the statement as “moderately acceptable”. Of the remaining respondents four (11.1%) rated the statement as “fairly acceptable” and three (8.3%) rated as “highly acceptable.” The weighted mean for this item was 3.444 which can also be interpreted as this item as “moderately acceptable” and the standard deviation was 0.808. *It can also be interpreted that the OSECT (FreeCRM) Tool’s Marketing Promotion, Pipeline and Campaign is sufficient and has the necessary details and fulfill the Business Requirements needs of the respondents.*

TABLE 7

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF MARKETING, PROMOTIONS, PIPELINE, CAMPAIGNS

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	3	8.3
4	Moderately Acceptable	14	38.9
3	Acceptable	15	41.7
2	Fairly Acceptable	4	11.1
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.444

Standard Deviation = 0.808

1.4 Tasks, Cases, Reports etc…- It is a smart feature that tracks incomplete tasks, sets-up deadlines, tracks priorities, tags and identifies key personnel assigned to each account. It has a case tab which tracks status, priorities, tags and deadline for cases filed by customers. It also has a report tab which has a variety of report formats that a user can choose and use based on their requirement.

ANALYSIS OF DATA: Respondents were asked if the proposed system provides task and report management (see Table 8). Of the thirty six

respondents (52.8%) or nineteen respondents rated the statement as “acceptable” and ten respondents (27.8%) rated the statement as “fairly acceptable”. Of the remaining respondents four (11.1%) rated the statement as “moderately acceptable” and three (8.3%) rated the statement as “highly acceptable.” The weighted mean for this item was 3.000 and the standard deviation was 0.909. *It can also be interpreted that the OSECT (FreeCRM) Tool’s Task, Cases and Report is adequate and have the basic details and fulfills the Business Requirements needs of the respondents.*

TABLE 8

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF TASKS, CASES, REPORTS

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	3	8.3
4	Moderately Acceptable	4	11.1
3	Acceptable	19	52.8
2	Fairly Acceptable	10	27.8
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.000

Standard Deviation = 0.909

1.5 Access Call, Email, Text/SMS, Alerts etc… - It helps individuals and businesses to stay productive, manage customer alerts and updates.

ANALYSIS OF DATA: Respondents were asked if the proposed system provides customer email alerts and updates (see Table 9). Of the thirty six respondents (44.4%) or sixteen respondents rated the statement as "acceptable" and eleven respondents (30.6%) rated the statement as "fairly acceptable". Of the remaining respondents six (16.7%) rated the statement as "moderately acceptable" and three (8.3%) rated the statement as "highly accepted." The weighted mean for this item was 3.027 and the standard deviation was 0.861. *It can also be interpreted that the OSECT (FreeCRM) Tool's Access Call, Email, Text/SMS and Alerts is adequate and have the basic details and fulfills the Business Requirements needs of the respondents.*

TABLE 9

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF ACCESS CALL, EMAIL, TEXT/SMS, ALERTS

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	3	8.3
4	Moderately Acceptable	6	16.7
3	Acceptable	16	44.4
2	Fairly Acceptable	11	30.6
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.027

Standard Deviation = 0.861

2. COSTS

2.1 A CRM solution can reduce sales costs by increasing the accuracy and effectiveness of related processes. Since, FreeCRM tool is free do you see this tool being used in your organization?

ANALYSIS OF DATA: Respondents were asked if the proposed system can reduce sales cost and can increase accuracy and effectiveness of related processes (see Table 10). Of the thirty six respondents (41.7%) or fifteen respondents rated the statement as “acceptable” and twelve respondents (33.3%) rated the statement as “moderately acceptable”. Of the remaining respondents nine (25.0%) rated the statement as “highly acceptable.” The weighted mean for this item was 3.833 which can also be interpreted as this item as “moderately acceptable” and the standard deviation was 0.810. *It can also be interpreted that the OSECT (FreeCRM) Tool can help reduce cost and increase accuracy in effectiveness of related processes, the tool is also commensurate and has the essential items and satisfy the Cost needs of the respondents.*

TABLE 10

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF INCREASING ACCURACY IN EFFECTIVENESS OF RELATED PROCESSES

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	9	25.0
4	Moderately Acceptable	12	33.3
3	Acceptable	15	41.7
2	Fairly Acceptable	0	0.0
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.833

Standard Deviation = 0.810

4.2 Additionally CRM can minimize order/service errors, saving the sales force significant amounts of time by reducing the need to re-process incorrect orders/service, and eliminating the costs how keen are you in using FreeCRM if this tool can help you reduced cost in associated order/service processing in your company?

ANALYSIS OF DATA: Respondents were asked if the proposed system can minimize order/service errors (see Table 11). Of the thirty six respondents (52.8%) or nineteen respondents rated the statement as "acceptable" and thirteen respondents (36.1%) rated the statement as

"moderately acceptable." Of the remaining respondents three (8.3%) rated the statement as "highly acceptable" and one (2.8%) rated the statement as "fairly acceptable." The weighted mean for this item was 3.500 which can also be interpreted as this item as "moderately acceptable" and the standard deviation was 0.696. *It can also be interpreted that the OSECT (FreeCRM) Tool can help minimize sales orders/service errors and saving sales force significant time, the tool is also commensurate and has the essential items and satisfies the Cost needs of the respondents.*

TABLE 11

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF MINIMIZING ORDER/SERVICE ERRORS AND SALESFORCE SAVING SIGNIFICANT TIME

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	3	8.3
4	Moderately Acceptable	13	36.1
3	Acceptable	19	52.8
2	Fairly Acceptable	1	2.8
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.500

Standard Deviation = 0.596

3. EASE OF USE

Overall reaction to the Tool:

3.1 SCREEN -It is the user front-end interface of the tool.

3.1.1 Reading characters on the screen - it is the tool interface on the screen, the font size should be readable and are in standard form.

ANALYSIS OF DATA: Respondents were asked on the proposed system, it should have characters that are readable in the screen (see Table 12). Of the thirty six respondents (58.3%) or twenty one respondents rated the statement as “acceptable” and ten respondents (27.8%) rated the statement as “moderately acceptable.” Of the remaining respondents three (8.3%) rated the statement as “highly acceptable” and two (5.6%) rated the statement as “fairly acceptable.” The weighted mean for this item was 3.388 and the standard deviation was 0.728. *It can also be interpreted that the OSECT (FreeCRM) Tool’s Screen readability is adequate and have the basic details and fulfills the Ease of Use needs of the respondents.*

TABLE 12

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF READABILITY OF CHARACTERS IN THE SCREEN

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	3	8.3
4	Moderately Acceptable	10	27.8
3	Acceptable	21	58.3
2	Fairly Acceptable	2	5.6
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.388

Standard Deviation = 0.729

3.1.2 Organization of information - The organizational structure must be capable of managing information throughout the information lifecycle.

ANALYSIS OF DATA: Respondents were asked on the proposed system, it should be capable of managing information throughout the information lifecycle. (See Table 13). Of the thirty six respondents (52.8%) or nineteen respondents rated the statement as “acceptable” and eleven respondents (30.6%) rated the statement as “moderately acceptable”. Of the remaining respondents four (11.1%) rated the

statement as fairly acceptable and two (5.6%) rated the statement as "highly acceptable." The weighted mean for this item was 3.305 and the standard deviation was 0.749. *It can also be interpreted that the OSECT (FreeCRM) Tool's Screen Organization of information is adequate and have the basic details and fulfills the Ease of Use needs of the respondents.*

TABLE 13

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF ORGANIZATION OF INFORMATION

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	2	5.6
4	Moderately Acceptable	11	30.6
3	Acceptable	19	52.8
2	Fairly Acceptable	4	11.1
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.305

Standard Deviation = 0.749

3.1.3 Sequence of tabs and screens - It's the way the tabs and screens are organized and all related tabs are in the same area.

ANALYSIS OF DATA: Respondents were asked on the proposed system sequence of tabs and screens should be related and organized. (See

Table 14). Of the thirty six respondents (60.0%) or twenty one respondents rated the statement as “acceptable” and ten respondents (28.6%) rated the statement as “moderately acceptable”. Of the remaining respondents two (5.6%) rated the statement as “fairly acceptable” and two (5.6%) rated the statement “highly acceptable.” The weighted mean for this item was 3.342 and the standard deviation was 0.683. *It can also be interpreted that the OSECT (FreeCRM) Tool’s Screen tabs and sequence is adequate and have the basic details and fulfills the Ease of Use needs of the respondents.*

TABLE 14

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF SEQUENCE OF TABS AND SCREENS

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	2	5.7
4	Moderately Acceptable	10	28.6
3	Acceptable	21	60.0
2	Fairly Acceptable	2	5.7
1	Unacceptable	0	0.0
	Total	35	100.0

Weighted Mean = 3.342

Standard Deviation = 0.683

3.1.4 Computer informs about its progress - prompts or pop-up are used to inform the user on the progress of the tool activity.

ANALYSIS OF DATA: Respondents were asked on the proposed system should have prompts to inform of the progress of the tool activity. (See Table 15). Of the thirty six respondents (63.9%) or twenty three respondents rated the statement as “acceptable” and ten respondents (27.8%) rated the statement as “moderately acceptable.” Of the remaining respondents two (5.6%) rated the statement as “highly acceptable” and one (2.8%) rated the statement as “fairly acceptable.” The weighted mean for this item was 3.361 and the standard deviation was 0.639. *It can also be interpreted that the OSECT (FreeCRM) Tool’s Screen prompts is adequate and have the basic details and fulfills the Ease of Use needs of the respondents.*

TABLE 15

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF INFORMING USER OF PROGRESS OF THE TOOL ACTIVITY

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	2	5.6
4	Moderately Acceptable	10	27.8
3	Acceptable	23	63.9
2	Fairly Acceptable	1	2.8
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.361

Standard Deviation = 0.639

3.1.5 Error messages - It is information displayed when an unexpected condition occurs, usually on a computer.

ANALYSIS OF DATA: Respondents were asked on the proposed system, it should have error messages to inform unexpected condition in the system. (See Table 16). Of the thirty six respondents (55.6%) or twenty respondents rated the statement as “acceptable” and thirteen respondents (36.1%) rated the statement as “moderately acceptable.” Of the remaining respondents two (5.6%) rated the statement as “fairly

acceptable" and one (2.8%) rated the statement as "highly acceptable." The weighted mean for this item was 3.361 and the standard deviation was 0.639. *It can also be interpreted that the OSECT (FreeCRM) Tool's Screen error messages are adequate and have the basic details and fulfills the Ease of Use needs of the respondents.*

TABLE 16

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF ERROR MESSAGES

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	1	2.8
4	Moderately Acceptable	13	36.1
3	Acceptable	20	55.6
2	Fairly Acceptable	2	5.6
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.361

Standard Deviation = 0.639

3.2 LEARNING - An interface which is easy to learn allow users to build on their knowledge without deliberate effort.

3.2.1 Learning to operate the system - Allow users to build on their prior knowledge of computer systems, and also any interaction patterns they have learned through use in a predictable way.

ANALYSIS OF DATA: Respondents were asked on how the proposed system should allow users to build on their prior knowledge of computer systems, and also any interaction patterns they have learned through use in a predictable way. (See Table 17). Of the thirty six respondents (58.3%) or twenty one respondents rated the statement as “acceptable” and twelve respondents (33.3%) rated the statement as “moderately acceptable.” Of the remaining respondents two (5.6%) rated the statement as “fairly acceptable” and one (2.8%) rated as “highly acceptable.” The weighted mean for this item was 3.333 and the standard deviation was 0.632. *It can also be interpreted that the OSECT (FreeCRM) Tool is adequate and have the basic details and fulfills the Ease of Use needs of the respondents in terms of Learning to operate the system.*

TABLE 17

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF LEARNING TO OPERATE THE SYSTEM

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	1	2.8
4	Moderately Acceptable	12	33.3
3	Acceptable	21	58.3
2	Fairly Acceptable	2	5.6
1	Unacceptable	0	0
	Total	36	100

Weighted Mean = 3.333

Standard Deviation = 0.632

3.2.2 Exploring new features by trial and error - The quality of the user assistance built into the interface can have a strong impact on the interface effectiveness.

ANALYSIS OF DATA: Respondents were asked on the proposed system, users should be able to explore new features by trial and error. (See Table 18). Of the thirty six respondents (58.3%) or twenty one respondents rated the statement as “acceptable” and eleven respondents (30.6%) rated the statement as “moderately acceptable.” Of the remaining respondents, three (8.3%) rated the statement as “fairly acceptable” and one (2.8%) rated the statement as highly acceptable.” The weighted mean for this item was 3.277 and the standard deviation was 0.659. *It can also be interpreted that the OSECT (FreeCRM) Tool is adequate and have the basic details and fulfills the Ease of Use needs of the respondents in terms Exploring new features by trial and error.*

TABLE 18

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF EXPLORING NEW FEATURES BY TRIAL AND ERROR

Numerical	Level of Acceptability	Frequency	Percentage

Rating		(n=36)	(100)
5	Highly Acceptable	1	2.8
4	Moderately Acceptable	11	30.6
3	Acceptable	21	58.3
2	Fairly Acceptable	3	8.3
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.277

Standard Deviation = 0.659

3.2.3 Remembering names and use of commands - Navigation design elements such as keyboard shortcuts, menus, links and other buttons all have an impact on efficiency and retention.

ANALYSIS OF DATA: Respondents were asked on the proposed system, users should be able to remember names and use of commands. (See Table 19). Of the thirty six respondents (61.1%) or twenty two respondents rated the statement as “acceptable” and eleven respondents (30.6%) rated the statement as “moderately acceptable.” Of the remaining respondents, two (5.6%) rated the statement as “fairly acceptable” and one (2.8%) rated the statement as “highly acceptable.” The weighted mean for this item was 3.305 and the standard deviation was 0.624. *It can also be interpreted that the OSECT (FreeCRM) Tool is adequate and*

have the basic details and fulfills the Ease of Use needs of the respondents in terms of Remembering names and use of commands.

TABLE 19

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF REMEMBERING NAME AND USE OF COMMANDS

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	1	2.8
4	Moderately Acceptable	11	30.6
3	Acceptable	22	61.1
2	Fairly Acceptable	2	5.6
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.305

Standard Deviation = 0.624

3.2.4 Performing tasks is straightforward - An interface is engaging if it is pleasant and satisfying to use.

ANALYSIS OF DATA: Respondents were asked on the proposed system, users should be able to perform tasks straightforward (see Table 20). Of the thirty six respondents (58.3%) or twenty one respondents rated the statement as “acceptable” and eleven respondents (30.6%) rated the statement as “moderately acceptable.” Of the remaining respondents three (8.3%) rated the statement as “fairly acceptable”

and one (2.8%) rated the statement as “highly acceptable.” The weighted mean for this item was 3.277 and the standard deviation was 0.659. *It can also be interpreted that the OSECT (FreeCRM) Tool is adequate and have the basic details and fulfills the Ease of Use needs of the respondents in terms of Performing task straightforward.*

TABLE 20

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF ENGAGING INTERFACE AND PERFORMING TASK STRAIGHTFORWARD

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	1	2.8
4	Moderately Acceptable	11	30.6
3	Acceptable	21	58.3
2	Fairly Acceptable	3	8.3
1	Unacceptable	0	0
	Total	36	100

Weighted Mean = 3.277

Standard Deviation = 0.659

3.2.5 Help messages on the screen - Note that a highly usable interface might treat error messages as part of the interface, including a clear description of the problem and also direct links to choices for a path to correct the problem.

ANALYSIS OF DATA: Respondents were asked on the proposed system, users should be able to use help messages on the screen (see Table

21). Of the thirty six respondents (63.9%) or twenty three respondents rated the statement as “acceptable” and eleven respondents (30.6%) rated the statement as “moderately acceptable.” Of the remaining respondents one (2.8%) rated the statement as “fairly acceptable” and one (2.8%) rated the statement as “highly acceptable.” The weighted mean for this item was 3.263 and the standard deviation was 0.644. *It can also be interpreted that the OSECT (FreeCRM) Tool is adequate and have the basic details and fulfills the Ease of Use needs of the respondents in terms of Help messages on the screen.*

TABLE 21

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF HELP MESSAGES IN THE SCREEN

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	1	2.8
4	Moderately Acceptable	11	30.6
3	Acceptable	23	63.9
2	Fairly Acceptable	1	2.8
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.236

Standard Deviation = 0.644

4. RELIABILITY

4.1 Wear-out & Fault Tolerance: Software does not have energy related wear-out phase just like hardware.

ANALYSIS OF DATA: Respondents were asked on the proposed system, has reliable wear-out & fault tolerance (see Table 22). Of the thirty six respondents (72.2%) or twenty six respondents rated the statement as "acceptable" and nine respondents (25.0%) rated the statement as "moderately acceptable." Of the remaining respondents one (2.8%) rated the statement as "highly acceptable." The weighted mean for this item was 3.305 and the standard deviation was 0.524. *It can also be interpreted that the OSECT (FreeCRM) Tool is adequate and have the basic details and fulfills the Reliability needs of the respondents in terms of Wear-out and Fault Tolerance.*

TABLE 22

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF WEAR-OUT AND FAULT TOLERANCE

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	1	2.8
4	Moderately Acceptable	9	25.0
3	Acceptable	26	72.2
2	Fairly Acceptable	0	0.0
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.305

Standard Deviation = 0.524

4.2 Repairable system concept and failure resilient system: Periodic restart helps fix software problem.

ANALYSIS OF DATA: Respondents were asked on the proposed system, has repairable system concept and failure resilient system (see Table 23). Of the thirty six respondents (69.4%) or twenty five respondents rated the statement as “acceptable” and nine respondents (25.0%) rated the statement at “moderately acceptable.” Of the remaining respondents one (2.8%) rated the statement as “highly acceptable” and one (2.8%) rated the statement as “fairly acceptable.” The weighted mean for this item was 3.277 and the standard deviation was 0.566. *It can also be interpreted that the OSECT (FreeCRM) Tool is adequate and have the basic details and fulfills the Reliability needs of the respondents in terms of Repairable system concept and failure resilient system.*

TABLE 23

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF REPAIRABLE SYSTEM CONCEPT, FAILURE RESILIENT SYSTEM

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	1	2.8

4	Moderately Acceptable	9	25.0
3	Acceptable	25	69.4
2	Fairly Acceptable	1	2.8
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.277

Standard Deviation = 0.566

4.3 Compliance to standard components & able to create and implement a set of policies and control in the system.

ANALYSIS OF DATA: Respondents were asked on the proposed system, has compliance to standard components & able to create and implement a set of policies and control in the system. (See Table 24). Of the thirty six respondents (69.4%) or twenty five respondents rated the statement as “acceptable” and eight respondents (22.2%) rated the statement “moderately acceptable.” Of the remaining respondents two (5.6%) rated the statement “fairly acceptable” and one (2.8%) rated the statement “highly acceptable.” The weighted mean for this item was 3.222 and the standard deviation was 0.590. *It can also be interpreted that the OSECT (FreeCRM) Tool is adequate and have the basic details and fulfills the Reliability needs of the respondents in terms of Compliance to standard components.*

TABLE 24

LEVEL OF OSECT ACCEPTABILITY IN TERMS OF COMPLIANCE TO STANDARD COMPONENTS

Numerical Rating	Level of Acceptability	Frequency (n=36)	Percentage (100)
5	Highly Acceptable	1	2.8
4	Moderately Acceptable	8	22.2
3	Acceptable	25	69.4
2	Fairly Acceptable	2	5.6
1	Unacceptable	0	0.0
	Total	36	100.0

Weighted Mean = 3.222

Standard Deviation = 0.590

ADDITIONAL QUESTIONNAIRE

While using the FreeCRM tool what are some of the problems you have encountered? If they are in the list please tick the box if not please use the other box to specify the problem you have encountered.

Please note that the testing period covered for the OSECT (FreeCRM) Tool is from November 2011 – March 2012 and the frequency column in Table 32 does not mean that the problems occurred all the time but the respondent's data have identified the problems they encountered.

ANALYSIS OF DATA: Respondents were asked to list the problems they encountered while testing and evaluating the OSECT Tool. (See Table 32). Of the thirty six respondents (22.22%) or eight respondents experienced “computer freeze” and another eight respondents said “they don’t have enough time”, (19.44%) said they “forget password or username.” Of the remaining respondents six (16.67%) said they experienced “slow internet”, five (13.89%) said they have “no internet” and others with two respondents said (5.56%): (a) power interruption Meralco repairs in the hours of my free time and (b) does not display some of the features or clickable items. The problems where ranked in Table 32 based from the frequency each problems are encountered by the respondents in the testing phase of the OSECT (FreeCRM) Tool.

TABLE 32

PROBLEMS ENCOUNTERED WHILE TESTING OSECT TOOL

PROBLEMS ENCOUNTERED	Frequency (n=36)	Percentage (100)	Ranking
Slow Internet	6	16.67%	3rd
No Internet	5	13.89%	4th
Computer Freeze	8	22.22%	1st
Forget Username/Password	7	19.44%	2nd
Not Enough Time for Testing	8	22.22%	1st
Others	2	5.56%	5th
-Power interruption Meralco repairs in the hours of my free time			
-Does not display some of the features or clickable items			

SUMMARY ANALYSIS

The summary of all standard deviation of each statement in the questionnaire shows the responses of the respondents on the perception with regards to the functionalities of the proposed system. The table shows that the standard deviation ranges between 0.909 and 0.524. The table also shows that the weighted mean ranges between 3.833 and 3.000. (See Table 29) Summaries are also shown for Business Requirement in Table 25, Costs in Table 26, Ease of Use in Table 27 and Reliability in Table 28.

TABLE 25

SUMMARY TABULATION OF STANDARD DEVIATION AND WEIGHTED MEANS FOR THE OSECT BUSINESS REQUIREMENT

No.	Questionnaire	Standard Deviation	Weighted Mean
1.1	Record System & Document Management	0.766	3.611
1.2	Sales, Leads, Targets Accounts	0.731	3.583
1.3	Marketing, Promotions, Pipeline, Campaigns	0.808	3.444
1.4	Tasks, Reports, Cases	0.909	3.000
1.5	Access Call, Email, Text/SMS, Alerts	0.861	3.027

Weighted Mean Average = 3.333

Standard Deviation Average = 0.815

TABLE 26

SUMMARY TABULATION OF STANDARD DEVIATION AND WEIGHTED MEANS

FOR THE OSECT COST

No.	Questionnaire	Standard Deviation	Weighted Mean
2.1	Reduce Cost and Increase Accuracy of Related Processes	0.81	3.833
2.2	Minimize Order/Services Errors Save Salesforce Significant Time	0.696	3.5

Weighted Mean Average = 3.666

Standard Deviation Average = 0.753

TABLE 27

SUMMARY TABULATION OF STANDARD DEVIATION AND WEIGHTED MEANS

FOR THE OSECT EASE OF USE

No.	Questionnaire	Standard Deviation	Weighted Mean
3.1.1	Readability of Character in the Screen	0.728	3.388
3.1.2	Organization of Information	0.749	3.305
3.1.3	Sequence of Tabs and Screens	0.683	3.342
3.1.4	Informing User of Progress of the Total Activity	0.639	3.361
3.1.5	Error Messages	0.639	3.361
3.2.1	Learning to Operate the System	0.632	3.333
3.2.2	Exploring New Features by Trial and Error	0.659	3.277
3.2.3	Remembering Names and Use of Commands	0.624	3.305
3.2.4	Engaging Interface and Performing Task Straightforward	0.659	3.277
3.2.5	Help Messages in the Screen	0.644	3.263

Weighted Mean Average = 3.321

Standard Deviation Average = 0.665

TABLE 28

SUMMARY TABULATION OF STANDARD DEVIATION AND WEIGHTED MEANS

FOR THE OSECT

RELIABILITY

No.	Questionnaire	Standard Deviation	Weighted Mean
4.1	Wear-out and Tolerance	0.524	3.305
4.2	Repairable System Concept & Failure Resilient System	0.566	3.277
4.3	Compliance to Standard	0.590	3.222

Weighted Mean Average = 3.268

Standard Deviation Average = 0.560

TABLE 29

SUMMARY TABULATION OF STANDARD DEVIATION AND WEIGHTED MEANS

FOR THE OSECT ALL REQUIREMENTS

No.	Summary of	Questionnaire	Standard Deviation	Weighted Mean
1.1	Business Requirement	Record System & Document Management	0.766	3.611
1.2	Business Requirement	Sales, Leads, Targets Accounts	0.731	3.583
1.3	Business Requirement	Marketing, Promotions, Pipeline, Campaigns	0.808	3.444
1.4	Business Requirement	Tasks, Reports, Cases	0.909	3.000
1.5	Business Requirement	Access Call, Email, Text/SMS, Alerts	0.861	3.027
2.1	Cost	Reduce Cost & Increase Accuracy of Related Processes	0.810	3.833
2.2	Cost	Minimize Order/Services Errors Save Salesforce Significant Time	0.696	3.500
3.1.1	Ease of Use	Readability of Character in the Screen	0.728	3.388
3.1.2	Ease of Use	Organization of Information	0.749	3.305
3.1.3	Ease of Use	Sequence of Tabs and Screens	0.683	3.342
3.1.4	Ease of Use	Informing User of Progress of the Total Activity	0.639	3.361
3.1.5	Ease of Use	Error Messages	0.639	3.361
3.2.1	Ease of Use	Learning to Operate the System	0.632	3.333
3.2.2	Ease of Use	Exploring New Features by Trial and Error	0.659	3.277
3.2.3	Ease of Use	Remembering Names and Use of Commands	0.624	3.305
3.2.4	Ease of Use	Engaging Interface & Performing Task Straightforward	0.659	3.277
3.2.5	Ease of Use	Help Messages in the Screen	0.644	3.263
4.1	Reliability	Wear-out and Tolerance	0.524	3.305
4.2	Reliability	Repairable System Concept & Failure Resilient System	0.566	3.277
4.3	Reliability	Compliance to Standard	0.590	3.222

Weighted Mean Average = 3.350

Standard Deviation Average = 0.695

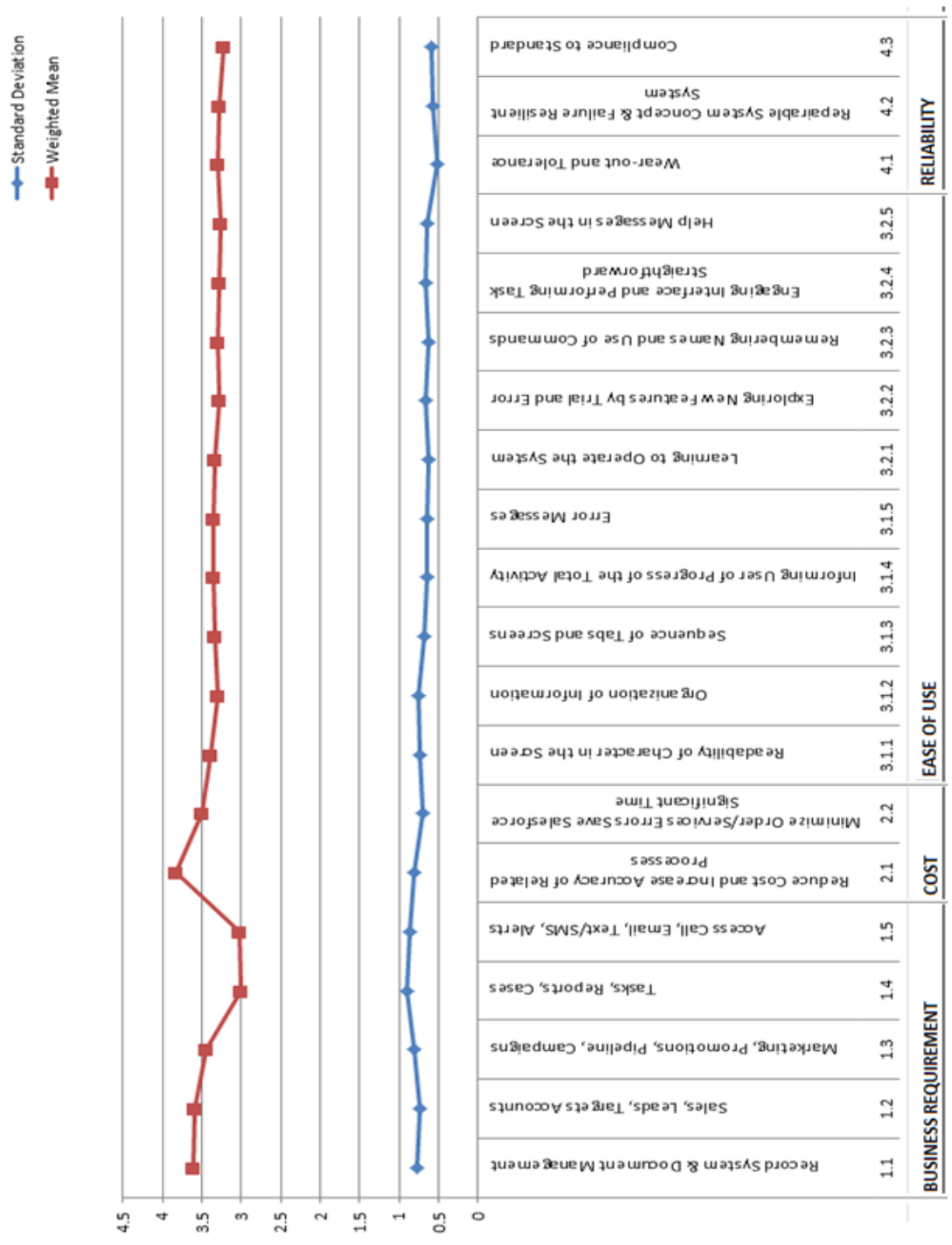


FIGURE 7. TABLE 29 GRAPHICAL REPRESENTATIONS

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the significant findings, along with the conclusions and recommendations which resulted from the analysis made by the researcher.

Precisely it seeks to answer the following questions:

1. How do the respondents assess the level of acceptability of Open Source e-Commerce Tool (FreeCRM) in terms of the following business requirements:

1.1 Record system and Document Management

1.2 Sales, Leads, Targets, Accounts

1.3 Marketing, Promotions, Pipeline, Campaigns

1.4 Tasks, Cases, Reports

1.5 Access Call, Email, Text/SMS, Alerts

2. What is the level of acceptability of Open Source e-Commerce Tool (FreeCRM) as evaluated by the respondents in terms of the following:

2.1 Cost

2.2 Ease of Use

2.3 Reliability

3. What are the problems encountered by the respondents while testing the Open Source e-Commerce Tool (FreeCRM) and what corrective measures can be proposed to solve these problems?

Based from the findings of the problems stated above the researcher will also propose an action plan to benefits SMEs in the Philippines.

SUMMARY

The proposed Open Source e-Commerce Tool (FreeCRM) administered in thirty six randomly selected companies is a very productive initiative. The respondents are owners, system administrators and CRM users were asked to test the system, to check its features and function and to analyze its applicability in their respective companies.

The purpose of this research was to evaluate the Open Source e-Commerce Tool (FreeCRM) and also the responses of the users based on the perception of the proposed system. Upon implementation and user training, an evaluation through online survey was used to collect data from the users and was then analyzed to acquire weighted mean, ranking, standard deviation, percentage and frequency counts.

The researcher used the descriptive method of research in achieving the requirements in the investigation of the study. This is beneficial for the researcher as it involves in-depth system analysis using the latest open source and CRM (Customer Relationship Management) technology in the industry.

Thirty six respondents composed of stakeholders which units are selected based on easy access and availability throughout the study. These respondents have direct participation in the implementation of the proposed system.

The researcher underwent several stages in conducting the study; this includes topical defense, title presentation, pre-oral defense and oral defense. As part of the data gathering the researcher interviewed respondents which are selected based on easy access and availability represented by companies in Makati to identify the problems. The researcher also gathered information from previous published studies pertaining to open source architectures and web-based CRM (Customer Relationship Management) tools widely used in business.

Test scripts were also written and executed to validate the Open Source e-Commerce Tool (FreeCRM) features and functions. Lastly implementation of the system was done followed by thorough evaluation of the Open Source e-Commerce Tool (FreeCRM). Discussions with advisers and interpolation with panels from the title presentation, pre-oral and oral defense were conducted.

FINDINGS

Based on the analysis undertaken, the following findings were hereby summarized:

1. On the assessment of the respondent on the level of the tool's acceptability in terms of the following business requirements:

1.1 On the acceptability of the Record system and Document Management of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.611 and interpreted as Moderately Acceptable.

1.2 On the acceptability of the Sales, Leads, Targets, Accounts, Contacts, etc… features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.583 and interpreted as Moderately Acceptable.

1.3 On the acceptability of the Marketing, Promotions, Pipeline, Campaigns, etc… features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.444 and interpreted as Moderately Acceptable.

1.4 On the acceptability of the Tasks, Cases, Reports etc…features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.000 and interpreted as Acceptable.

1.5 On the acceptability of Access Call, Email, Text/SMS, Alerts etc…features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.027 and interpreted as Acceptable.

2. On the assessment of the respondents on cost acceptability in terms of the following:

2.1 On the acceptability of the CRM (Customer Relationship Management) solution that can reduce sales costs by increasing the accuracy and effectiveness features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.833 and interpreted as Moderately Acceptable.

2.2 On the acceptability of the Open Source e-Commerce Tool (FreeCRM) can minimize order/service errors, saving the sales force significant amounts of time and cost features of the Open Source e-Commerce Tool (FreeCRM), the

tool got an average weighted mean of 3.500 and interpreted as Moderately Acceptable.

3. Ease of use, overall reaction to the Open Source e-Commerce Tool (FreeCRM):

3.1 Screen -It is the user front-end interface of the tool.

3.1.1 In terms of reading characters on the screen features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.388 and interpreted as Acceptable.

3.1.2 In terms of the organization of information features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.305 and interpreted as Acceptable.

3.1.3 In terms of the sequence of tabs and screens features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.342 and interpreted as Acceptable.

3.1.4 In terms screen prompts and computer informs about its progress features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.361 and interpreted as Acceptable.

3.1.5 In terms of the error messages features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.361 and interpreted as Acceptable.

3.2 On the assessment of the respondents on the learning of the interface and allow users to build on their knowledge without deliberate effort.

3.2.1 In terms of learning to operate the system features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.333 and interpreted as Acceptable.

3.2.2 In terms of exploring new features by trial and error features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.277 and interpreted as Acceptable.

3.2.3 In terms of remembering names and use of commands features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.305 and interpreted as Acceptable.

3.2.4 In terms of performing tasks are straightforward features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.277 and interpreted as Acceptable.

3.2.5 In terms of the help messages on the screen features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.263 and interpreted as Acceptable.

4. On the assessment of the respondents on Open Source e-Commerce Tool (FreeCRM) reliability.

4.1 In terms of wear-out & fault tolerance features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.305 and interpreted as Acceptable.

4.2 In terms of repairable system concept and failure resilient system features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.277 and interpreted as Acceptable.

4.3 In terms of compliance to standard components & able to create and implement a set of policies and control in the system features of the Open Source e-Commerce Tool (FreeCRM), the tool got an average weighted mean of 3.222 and interpreted as Acceptable.

5. On the problems you have encountered while testing the Open Source e-Commerce Tool (FreeCRM). Of the thirty six respondents (22.22%) or eight respondents experienced • computer freeze. and another eight respondents said they don't have enough time, (19.44%) said they forget password or username. Of the remaining respondents six (16.67%) said they experienced • slow internet, five (13.89%) said they have • no internet and others with two respondents said (5.56%); (a) power interruption Meralco repairs in the hours of my free time and (b) does not display some of the features or clickable items. To resolve the problems encountered while testing the Open Source e-Commerce Tool (FreeCRM) the researcher created FreeCRM Troubleshooting Basics which can be found in the Appendices page 128.

With regards to the summary of all standard deviation of each statement in the questionnaire shows the responses of the respondents on the perception with regards to the functionalities of the proposed system. The response of all respondent shows that the range of standard deviation across all statements was close to each other with a range of 0.909 to 0.524. This indicates minimal variation on the responses of the respondents with regards to the functionality of the proposed system.

CONCLUSIONS

This paper is important to the researcher because she realized the essence of SMEs as one of the primary component of national growth in the Philippines. To be more accurate Small and medium enterprises (SMEs) comprise 99.6% of all registered business in the Philippines and employ 70% of the workforce, if this resource can be tapped the country will far be more progressive than our Asian counterpart. Makati City being the prime business district is the best playing field in testing the ground for Open Source e-Commerce Tool (FreeCRM). Although, these being the pilot test, the results are varied though in the end all are in acceptable level. In terms of the business requirement for record system and document management, sales, leads, target and accounts, marketing, pipeline, promotion and campaign the tool was rated moderately acceptable. While the business requirement for tasks, cases, reports, access call, email, text/sms and alerts rated the tool acceptable. On the cost requirement the tool was rated moderately acceptable, on ease of use and reliability it was rated acceptable. The testing phase for the respondents is also not immune to problems they have encountered normal glitches like slow internet, no internet, computer freeze, forget username/password and not enough time for testing. Although, these are problems which can easily be resolved on their own. The researcher propose some corrective measures to resolve the problems encountered while testing the Open Source e-Commerce Tool (FreeCRM) the researcher created FreeCRM Troubleshooting Basics which can be found in the Appendices page 128.

With the response that the researcher got from this research it is very clear that the SMEs are willing to adapt to new technologies and that they are willing to try means and ways to improve their business. However, the researcher also realized that she can only reach to so much population given with the resources that she has. The SMEs are also thinking globally but not all of them are aware of several possibilities they can use like Open Source e-Commerce Tool (FreeCRM) that can help them compete to a much wider area.

To the readers of this paper here is a challenge especially to those IT savvy professionals we need volunteers to help boost our economy, and we need them now. We need you to share your expertise and help our SMEs find way to move their business to the next level. Let's do our part in nation building lets help our community grow thru sharing our knowledge.

RECOMMENDATIONS

Based on the results of this study, the following are the researcher's recommendations:

1. The evaluation findings were encouraging in that the scores reported by the users were very high. All areas on the survey form had weighted mean measurements of 3 and low standard deviations. This shows two possibilities. The Open Source e-Commerce Tool (FreeCRM) was appropriate and fit to use by the SMEs in Makati.

2. The testing and evaluation of the Open Source e-Commerce Tool (FreeCRM) was acceptable for the prerequisites of this study: which are business requirements, cost, ease of use and reliability.

3. Consideration should be given to other areas especially the problems encountered by the respondents such as slow internet, no internet, computer freeze, forget username/password and not enough time for testing. This simply means that the tool needs more time and period of incubation before it can be useful to the SMEs. The researcher recommends further evaluation on these areas six months after implementation to fully assess the Open Source e-Commerce Tool (FreeCRM). The researcher also propose some corrective measures to resolve the problems encountered while testing the Open Source e-Commerce Tool (FreeCRM) the researcher created FreeCRM Troubleshooting Basics which can be found in the Appendices page 128.

4. The tested and evaluated Open Source e-Commerce Tool (FreeCRM) recommended to be implemented in the organization. Furthermore, the stakeholders are encouraged to utilize the system for effective sales and marketing management.

5. The researcher evaluated the Open Source e-Commerce Tool (FreeCRM) based on the problems and requirements gathered on the duration of the research. Upon testing and evaluation, additional requirements such as security and accuracy were raised but were not incorporated in the system due to budget constraints. The researcher recommends that the SMEs in Makati choose to use

the tool to avail of the packages of the Open Source e-Commerce Tool (FreeCRM) that have fees in order to solve the constraints.

6. In the future, the Open Source e-Commerce Tool (FreeCRM) should be partnered with a business analytics application so that it can help provide predictable trends and buying patterns of the customers. Sales and marketing personnel will love this function because it will help them in their sales and marketing efforts.

7. The researcher also recommends that the system be reviewed by concerned government agencies to determine its applicability to SMEs in Makati. And in line with this recommendation the researcher made an Action Plan which can be viewed in the Appendices. Please take time to read and find in your heart to volunteer for our own good and the good of this country.

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APPENDICES

Appendix 1 Sample Survey Questionnaire

POLYTECHNIC UNIVERSITY OF THE PHILIPPINES
Sta. Mesa, Manila
Graduate School

Dear Respondents:

The undersigned is conducting a study entitle “AN EVALUATION OF AN OPEN SOURCE E-COMMERCE TOOL FOR PHILIPPINE SME’S (SMALL MEDIUM ENTERPRISES) IN MAKATI CITY " as a partial fulfilment of the requirements for the degree Master of Science in Information Technology. Relative to this, you are chosen to be part of the endeavour that will evaluate the system. Please read each item, answer it honestly and rest assured that the information you will provide will be dealt with utmost confidentiality and will be only used for the purpose of the study.

Thank you.

Sincerely yours,

ANGELICA P. PAYNE
Researcher

Noted:

Prof. Flordeliz Garcia
Thesis Adviser

SURVEY QUESTIONNAIRE:

Company Name: _____

Address: _____

Phone: _____

E-mail: _____

Name of Person Completing This Form: _____

Title/Position: _____

Please describe the nature of your company: (e.g. products or service offered)

_____

_____

About the survey:

Free CRM is an open-source web based software solution for customer relationship management and sales force automation. Free CRM is a tool that can help SME for contact and lead tracking, sales and contact management, sales pipeline management and forecasting, customer service and business management. The researcher is conducting this survey to evaluate FreeCRM and ascertain if it's a viable tool that can help SMEs' in the Philippines in particular the Makati area in managing their businesses. The data received from this questionnaire is only for SMEs' who will test FreeCRM Tool. SME are assured and researcher is obliged to treat all information in strictest confidence and will under no circumstances give data to other third parties.

LEGEND:	
Highly Acceptable	5
Moderately Acceptable	4
Acceptable	3
Fairly Acceptable	2
Unacceptable	1

1. BUSINESS REQUIREMENT How do you (as the respondent) assess the level of the tool's acceptability in terms of the following business requirements:	Encircle your choice:				
1.1 Record systems and Document Management - It is an information storage system (commonly implemented on a computer system), which is the authoritative data source for a given piece of information.	5	4	3	2	1
1.2 Sales, Leads, Targets, Accounts, Contacts, etc... - This system includes a contact management system which tracks all customer activity and ensures that sales efforts are not duplicated, reducing the risk of irritating the customers. It also includes a sales lead tracking system, which lists potential customers through phone lists, or customers of related products.	5	4	3	2	1
1.3 Marketing, Promotions, Pipeline, Campaigns, etc... - It assists e-commerce enterprises in effectively communicating relevant messages to customers in order to improve sales either directly or indirectly thru the use of campaigns, marketing promotions and pipeline tabs that can be customize for each client or customer.	5	4	3	2	1
1.4 Tasks, Cases, Reports etc...- It is a smart feature that tracks incomplete tasks, sets-up deadlines, tracks priorities, tags and identifies key personnel assigned to each account. It has a case tab which tracks status, priorities, tags and deadline for cases filed by customers. It also has a report tab which has a variety of report formats that a user can choose and use based on their requirement.	5	4	3	2	1
1.5 Access Call, Email, Text/SMS, Alerts etc... - It helps individuals and businesses to stay productive, manage customer alerts and updates. The call tab schedules a call, sets a reminder and flag a call. The email tab lets you do an email blasts and monitor each campaign for each customer. Text/SMS tabs lets you send text campaign to customers but phone lines must be properly set in the Text/SMS tab. The alerts tab can be used to remind or alert a specific user and it will be sent via email.	5	4	3	2	1
2. COST					
The total money, time and resources associated with a purchase or activity.					
2.1 A CRM solution can reduce sales costs by increasing the accuracy and effectiveness of related processes	5	4	3	2	1
For example, when the peso value and product mix of deals are forecasted more precisely, inventory costs can be dramatically reduced. In view of this statement since, FreeCRM tool is free do you see this tool being used in your organization?					

2.2 CRM can minimize order errors - 2.2 Additionally CRM can minimize order/service errors, saving the salesforce significant amounts of time by reducing the need to re-process incorrect orders/service, and eliminating the costs associated with replacing incorrect items that have been shipped to customers or incorrect type of service rendered to customers. If it is given that you are looking for a tool like FreeCRM how keen are you in using FreeCRM if this tool can help you reduced cost in associated order/service processing in your company?	5	4	3	2	1
3. EASE OF USE - Ease of use or usability is "The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use."					
Overall reaction to the Tool: **3.1 SCREEN -It is the user front-end interface of the tool.**					
3.1.1 Reading characters on the screen - it is the tool interface on the screen, the font size should be readable and are in standard form.	5	4	3	2	1
3.1.2 Organization of information - The organizational structure must be capable of managing information throughout the information lifecycle. It is the ability of the information organization tool to capture, manage, preserve, store and deliver the right information to the right people at the right time.	5	4	3	2	1
3.1.3 Sequence of tabs and screens - It's the way the tabs and screens are organized and all related tabs are in the same area.	5	4	3	2	1
3.1.4 Computer informs about its progress - prompts or pop-up are used to inform the user on the progress of the tool activity.	5	4	3	2	1
3.1.5 Error messages - It is information displayed when an unexpected condition occurs, usually on a computer. On modern operating systems with graphical user interfaces, error messages are often displayed using dialog boxes. Error messages are used when user intervention is required, to indicate that a desired operation has failed, or to relay important warnings.	5	4	3	2	1
3.2 LEARNING - An interface which is easy to learn allow users to build on their knowledge without deliberate effort. This goes beyond a general helpfulness to include built-in instruction for difficult or advanced tasks, access to knowledge bases which are critical to effective use.	5	4	3	2	1
3.2.1 Learning to operate the system - Allow users to build on their prior knowledge of computer systems, and also any interaction patterns they have learned through use in a predictable way. A consistent interface ensures that terminology does not change, that design elements and controls are placed in familiar locations and that similar functions behave similarly.	5	4	3	2	1

3.2.2 Exploring new features by trial and error - The quality of the user assistance built into the interface can have a strong impact on the interface effectiveness. It often relies on the presentation of choices in a way that is clearly understandable to the user. The more informative an interface can be, the better users are able to work in it without problems.	5	4	3	2	1
3.2.3 Remembering names and use of commands - Navigation design elements such as keyboard shortcuts, menus, links and other buttons all have an impact on efficiency and retention. When they are well-designed, with clearly expressed actions, less time and effort are needed for the user to make navigation and action choices.	5	4	3	2	1
3.2.4 Performing tasks is straightforward - An interface is engaging if it is pleasant and satisfying to use. The design and readability of the text can change a user's relationship to the interface and the way information is chunked for presentation. Like all usability characteristics, these qualities must be appropriate to the tasks, users and context.	5	4	3	2	1
3.2.5 Help messages on the screen - Note that a highly usable interface might treat error messages as part of the interface, including a clear description of the problem, and also direct links to choices for a path to correct the problem. This is the reason why help messages are very important user interface and must be useful and users can clearly manipulate it.	5	4	3	2	1
4. RELIABILITY - It is the probability of failure-free software operation for a specified period of time in a specified environment. The probability is a function of inputs to and use in the system as well as a function of the existence of faults in the software. The inputs to the system determine whether existing faults, if any, are encountered.					
4.1 Wear-out & Fault Tolerance: Software does not have energy related wear-out phase just like hardware. The tool is fault tolerant when an anomaly occurs, the faulty component is determined and taken out of service, and the system continues to function as usual.	5	4	3	2	1
4.2 Repairable system concept and failure resilient system: Periodic restarts helps fix software problems. And there is an established error handling mechanisms for fault detection, diagnosis, isolation, and recovery procedures which are incorporated to tolerate the tool system failures.	5	4	3	2	1
4.3 Compliance to standard components & able to create and implement a set of policies and control in the system: The tool is compliant to the organization's policies in its technologies and controls are implemented using centralized management that can be fully configured and programmed by the user.	5	4	3	2	1

This is an additional question to verify the problems encountered while using FreeCRM Tool

Thank you for taking time again to answer this additional question for my research. While using the FreeCRM tool what are some of the problems you have encountered? If they are in the list please tick the box if not please use the other box to specify the problem you have encountered.

*** Are they any of the following:**

- ○ **Slow Internet**
- ○ **No Internet**
- ○ **Computer Freeze**
- ○ **Forget Username/Password**
- ○ **Not Enough Time for Testing**
- ○ **Others**

Reset

< Finish Survey>